ADMINISTRATIVE COUNTY OF ESSEX.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1910.

WITH

SUMMARY OF REPORTS OF DISTRICT MEDICAL OFFICERS OF HEALTH.

BY

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PREFACE.

To the Chairman and Members of the Public Health and Housing Committee of the Essex County Council.

GENTLEMEN,

I have now pleasure in submitting the 21st Annual Report bearing upon the Health and Sanitary Administration of the County. All these reports have been prepared by me and, with the exception of the first*, for the year 1890, have been printed and distributed. When I first undertook the duties of County Medical Officer of Health the population of the Administrative County was 577,843, now it is 1,062,000, and it is increasing at the rate of about $2\frac{1}{2}$ per cent. per annum.

In 1891 there were 21 Urban Districts and 19 Rural Districts in the County, now there are 32 Urban Districts and 17 Rural Districts, an increase of 9 districts from which Annual Reports are received.

A comparison of certain of the statistics for 1891 and 1910 may be interesting:—

	1891.	1910.	Difference.
Death-rate	16·1	10·35	—5.75
Infantile Mortality	110·	75·4	—34·6
Death-rate from the seven principal Infectious Diseases ...	1·55	0·5	—1·05
Death-rate from Phthisis ...	1·24	0·77	— ·47
Birth-rate	30·1	23·1	—7·0

The increase in population has been most marked in the Southern Urban Districts, and this makes the very marked decrease in the death-rates so much more satisfactory. There is no doubt that the County is now one of the healthiest, if not the healthiest, in the kingdom, and this statement is based not only on the general death-rate, but on the mortality amongst infants and the death-rate from all infectious diseases.

The increase in population in the Rural Districts during the last 10 years is over 10 per cent. This is due to the development of building estates in the Southern half of the county. In certain Rural Districts bungalows and small houses of recent erection are dotted all over, and at Upminster and Romford Garden Cities are rising. The laying out of the Gidea Park Estate will cause a large increase to the population of Romford. This is one of the prettiest and healthiest parts of the County, and the character of the houses erected is such that a large, good-class population should spring up there within the next few years. Unlike many of the estates laid out in Essex, this is being adequately sewered, provided with good water, and hard roads. The lack of these advantages has greatly retarded development in other districts.

*An epitome of this report was printed.

This "back to the country" tendency is so very marked in Essex, and is of such great importance, that I am surprised so few Medical Officers refer to it. The tendency will probably increase as the health records of the County become better known, but the development wants careful watching, as the future of the County depends greatly on the Sanitary Administration of the present.

In the nineties there were many authorities who did not regard it as necessary to publish the reports of their Medical Officers of Health, and I regret to say that there are still three districts which, for some reason, only supply these reports in manuscript form. These are the Urban Districts of *Braintree*, *Harwich*, and *Shoeburyness*. Probably in consequence these reports are meagre, and do not contain nearly so much information as could be desired.

A large number of the reports are excellent in all respects, but there are many which leave much to be desired. Members of Sanitary Authorities, and the County Council and the Local Government Board look to these reports to ascertain the sanitary condition of the districts, the efficiency of the sanitary administration, the improvements recently effected, and the improvements still required. Too often little information is available save such as may be surmised from the statistical tables, and even this may be misleading if the populations are not correct. Still, comparing 1891 with 1910, the improvement in the general character of the reports has been enormous, and doubtless a little additional pressure from the Local Government Board would speedily result in a further improvement. The issue of the Census returns for 1911 has enabled me to estimate the population for the year 1910, and I found such marked discrepancies between the Medical Officers of Healths' estimates and those calculated from the Census returns that I had to re-calculate the whole of the statistics. The summaries of the reports had already been struck off by the printer, consequently they have not been altered but remain as given by the respective Medical Officers. The true death-rates, etc , will be found in Sections I. and II.

Your Committee has undoubtedly exercised a marked influence in the past in rousing Sanitary Authorities to a realization of their duties. There are still some districts which require stimulating and encouraging, and there are many matters which require the further attention of your Committee. Amongst these may be mentioned :—

(1) The provision of Isolation Hospital accommodation in certain Rural and small Urban Districts ;

(2) The prevention of river pollution by the indiscriminate discharge of crude sewage from many large villages into open ditches, into road drains, or directly into streams.

(3) The bringing of pressure upon Rural Authorities to provide better housing accommodation for the agricultural labourer and other residents in rural areas.

(4) The provision of public water supplies where the water now available is either too limited in amount or unsatisfactory in quality.

I should like the Committee to possess a complete set of all the bye-laws adopted by the various Sanitary Authorities. I suspect many of these are not modern, and probably it would be found that in some cases additional bye-laws could be adopted with advantage

In many matters connected with local sanitary administration I think the County Council might have additional powers. The powers possessed at present are very limited, and it is not always satisfactory, after long correspondence with an authority urging them to carry out some sanitary requirement, to be able to do nothing beyond reporting to the Local Government Board the failure of the efforts to bring about any improvement. The County has no powers under the Dairies, Cowsheds, and Milk-shops Order and can exercise no control over the conditions under which milk is produced, yet probably not a week passes but I am requested by the Medical Officer of Health for the City of London or the London County Council to ascertain whether certain dairies are in a satisfactory condition, or whether there are any tuberculous cows in the herds. By the courtesy of the local Medical Officers of Health I am usually able to give the required information, but these are matters over which the Council has no control whatever.

Fortunately, in the past, the Medical Officers of Health have been always willing to assist in securing sanitary improvements even when there has been no legal obligation upon them to do so, and in this County I invariably find the Medical Officers ready to assist me to any reasonable extent. I desire, once more, to thank them for their courtesy towards me and for their kindness in revising the abstracts of their reports.

In July last the Local Government Board issued a General Order defining the duties of County Medical Officers of Health and specifying the nature of the Report to be prepared annually. A copy of this order will be found in the Appendix. In consequence of this Order the Report is no longer a mere summary of the local Medical Officers' reports, but an actual report on the sanitary circumstances, the sanitary administration, and the vital statistics of the County, prepared in part only from the Annual Reports.

I am, Gentlemen,

Your obedient Servant,

JOHN C. THRESH.

CHELMSFORD,
July, 1911.

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SECTION I.

POPULATION OF THE COUNTY.

The Census Returns just issued enable the estimates of the various Medical Officers of Health to be checked, and as a result it is found that in a few districts the population has been so seriously overestimated that the totals for the County are affected.

The following figures shew that the overestimate is practically limited to the Urban Districts, the total of the Rural estimates approximating very nearly to the truth.

	Total M.O.H. Estimates middle of 1910.	Census Returns April, 1911.
Urban Districts ...	840,945 ...	796,571
Rural ,, ...	255,054 ...	265,429
Total ...	1,095,999 ...	1,062,000

Calculated from the Census Returns the actual population in 1910 would be 1,041,280, which is 54,719 less than the Medical Officers' estimates

	1901 Census.	1911 Census.	Increase.	Increase per cent.
Urban Districts ...	576,508 ...	796,571 ...	220,063 ...	38·1
Rural ,, ...	240,132 ...	265,429 ...	25,297 ...	10·5
	816,640 ...	1,062,000 ...	245,360 ...	30·0

The figures given in the official returns for the counties developing most rapidly, including the associated County Boroughs, are as under:—

POPULATION.

	1891.	1901.	1911.	Increase per cent. in intercensal period. 1891-1901.	1901-1911.
Middlesex ...	543,223 ...	792,476 ...	1,126,694 ...	45·9 ...	42·2
Monmouthshire ...	258,133 ...	298,076 ...	395,778 ...	15·5 ...	32·8
Glamorganshire ...	687,218 ...	859,931 ...	1,121,062 ...	25·1 ...	30·4
Surrey	521,844 ...	653,661 ...	845,544 ...	25·3 ...	29·4
Essex	783,374 ...	1,083,998 ...	1,351,102 ...	38·4 ...	24·6
Hertfordshire ...	226,587 ...	258,423 ...	311,321 ...	14·1 ...	20·5

Taking the whole county (*i.e.*, including West Ham), Essex came second in percentage increase of population during 1891-1901, whereas it is fifth during 1901-11. The administrative county with an increase of 30 per cent. would come fourth.

For the first time the Administrative County appears amongst the few with a population exceeding one million. These are (exclusive of London)—

	Population, 1911 census.	Increase during last 10 years.
Lancashire	1,739,524 ...	161,379
Yorkshire West Riding ..	1,585,135 ...	195,959
Middlesex	1,126,694 ...	334,218
Essex	1,062,000 ...	245,360
Kent	1,021,033 ...	84,793

Middlesex is the only one of these counties increasing more rapidly than Essex.

The Table appended (Table I.), gives the population in 1910 according to the Medical Officers' Reports, the census figures for April, 1911, and the actual increase or decrease during the 10 years, 1901-11. The errors may be approximately gauged by comparing the estimated population in 1910 with the actual population in 1911. The true error is a little larger than this difference, as nine months' growth of population should be added to the 1910 estimates. The chief errors are as under :—

Barking ...	Over-estimated about	1,200
East Ham ...	,, ,,	24,000
Southend ...	,, ,,	2,500
Walthamstow	,, ,,	17,000
Ilford ...	,, ,,	2,500
Woodford ...	,, ,,	2,000

In a few instances the difference is due to the census returns including large institutions which are excluded in the Medical Officers' figures. For example, the Billericay Rural Returns include the Barracks, County Asylum, etc., and until the detailed census is published it is impossible to say whether the Medical Officer's estimate is erroneous or not, but it is very probable that his estimate is too low. In a few instances the estimates are too low as in Braintree, Harwich, Rochford Rural and Saffron Walden Rural.

In the following tables of death-rates, birth-rates, etc., for the County, the rates have been based upon the following populations calculated from the 1911 census returns :—

Population of the Urban Districts, middle of 1910 ...	777,490
,, ,, Rural ,, ,, ,, ...	263,790
Total... ...	1,041,280

TABLE I.

	Population as estimated by District M.O.H. mid-year 1910.	Census Population, 1911.	Change in intercensal decade.	
			Increase.	Decrease.
Urban Districts.				
Barking	32,505	31,302	9,755	—
Braintree	5,330	6,168	838	—
Brentwood	8,105	6,923	1,991	—
Brightlingsea	5,074	4,404	—	97
Buckhurst Hill	5,350	4,887	101	—
Burnham	3,326	3,190	271	—
Chelmsford	17,800	18,008	2,436	—
Chingford	8,310	8,186	3,813	—
Clacton-on-Sea	8,157	9,777	2,321	—
Colchester	42,275	43,463	5,090	—
East Ham	156,208	133,504	37,496	—
Epping..	4,530	4,253	464	—
Frinton-on-Sea	2,000	1,510	863	—
Grays	15,750	16,003	2,169	—
Halstead	6,100	6,265	192	—
Harwich	11.522	13,623	3,553	—
Ilford	80,522	78,205	36,961	—
Leigh-on-Sea	7,378	7,716	4,049	—
Leyton	123,300	124,736	25,824	—
Loughton	6,100	5,433	703	—
Maldon	5,739	6,253	688	—
Romford	16,990	16,972	3,316	—
Saffron Walden	6,525	6,311	415	—
Shoeburyness	4,900	5,006	925	—
Southend-on-Sea	64,989	62,723	33,866	—
Waltham Holy Cross	7,000	6,796	247	—
Walthamstow	141,748	124,597	29,466	—
Walton-on-Naze	2,410	2,173	162	—
Wanstead	14,000	13,831	4,652	—
Witham	3,640	3,480	26	—
Wivenhoe	3,000	2,376	—	184
Woodford	20,365	18,497	4,699	—
Total	840,945	796,571	217,352	281
Rural Districts.				
Belchamp	4,840	4,676	—	171
Billericay	15,192	21,557	4,053	—
Braintree	18,106	18,463	354	—
Bumpstead	2,230	2,594	53	—
Chelmsford	22,770	22,792	2,067	—
Dunmow	15,440	16,087	382	—
Epping..	14,538	13,959	1,176	—
Halstead No. 1	4,779	10,332	156	—
Halstead No. 2	5,695			
Lexden & Winstree	20,190	19,686	1,100	—
Maldon	16,100	16,164	1,531	—
Ongar	10,550	10,647	603	—
Orsett	24,658	24,874	4,962	—
Rochford	16,870	18,399	3,834	—
Romford	24,500	25,361	6,343	—
Saffron Walden	9,239	10,812	48	—
Stanstead	6,868	7,066	178	—
Tendring	22,489	21,960	1,620	—
Total	255,054	265,429	28,460	171
Administrative County ..	1,095,999	1,062,000	245,360	—

THE BIRTH-RATES.

The total number of births registered in 1910 and two previous years were as under :—

	1910.	1909.	1908.
Urban Districts	18,428	18,702	19,000
Rural ,, ...	5,649	5,746	5,954
	24,077	24,448	24,954

Decrease in Urban Births registered	274
,, Rural ,, ,, ...	97
Total decrease ...	371

Notwithstanding the increased population the births in 1910 were less than in 1909, and this decrease occurred both in the Urban and Rural districts, and unfortunately it is not the first time such a result has been recorded.

TABLE II.

BIRTH-RATES PER 1,000 POPULATION.

	1910.	1909.	1908.
Urban Districts	23·7	24·7	25·8
Rural Districts	21·4	23·2	24·5
Administrative County	23·1	24·0	25·2

The birth-rate for England and Wales for 1910 was 24·8, which was 0·8 below that for 1909. Essex, therefore, has a birth-rate of 1·7 below that of England and Wales, and this rate is decreasing a little faster. Too much stress must not be laid on these figures as the age and sex distribution may be, and probably is, very different from that of the country generally, but unless there has been a marked change during the last 10 years the correction would show that the County birth-rate is more than 1·7 per 1,000 below the average for England and Wales.

These corrections cannot be given in this report since the details of the census are not available, and it would probably not be safe to assume that the figures calculated from the previous census returns would still apply.

Certain districts have birth-rates considerably above the average, and it is noteworthy that these are areas with a large working-class population.

Barking	29·7
Walthamstow	26·3
Grays	28·1
Shoeburyness	31·8

The lowest birth-rates are recorded in such residential neighbourhoods as Wanstead 15·0 and Saffron Walden 16·3.

When the necessary corrections for age and sex are made, the birth-rate in the rural districts will be about the same as that for the urban.

THE DEATH-RATES.

The total deaths recorded in the County and included in the Medical Officers' returns are 10,533, but to these must be added 243 deaths which occurred in the County Asylum, making a total of 10,776. This is a decrease of 717 under 1909. In compiling Table III. the Asylum deaths have been distributed *pro rata* between the Urban and Rural districts.

	1910.	1909.	1908.
Urban Districts	7,563	8,034	7,923
Rural ,, ...	2,970	3,212	3,179
	10,533	11,246	11,102
County Asylum deaths	243	247	241
Total deaths in Administrative County ...	10,776	11,493	11,343

TABLE III.

DEATH-RATES PER 1,000 POPULATION.

	1910.	1909.	1908.
Urban Districts	9·95	11·0	11·15
Rural Districts	11·5	12·8	13·0
Administrative County	10·35	11·2	11·4
England and Wales	13·4	14·5	14·7

This continuous decline in the death-rate is remarkable and it is practically impossible for it to go much lower. The efficiency of sanitary administration may have a good deal to do with the decline, but the comparatively cool summers, and mild winters of recent years are, in my opinion, more important factors. A hot, dry summer followed by a very severe winter would send the death-rate up with a bound and make it comparable with those of 10 years ago.

The effect of climatic conditions on deaths from certain diseases is brought out in a most striking manner in the Chart attached to the section dealing with infantile mortality.

Essex, however, is probably the healthiest Administrative County in England. In the following table taken from the Registrar General's returns, the County takes second place, but if corrected for West Ham it would almost certainly occupy the

premier position. It must be remembered however that all the Registrar General's returns are based on estimates of population which have not been corrected from the recent census returns.

TABLE IV.

County.	Death-rate.	County.	Death-rate.
Middlesex	10·2	Suffolk	13·0
Essex	10·5	Norfolk	13·1
Northamptonshire ...	11·1	Cambridgeshire ...	13·3
Leicestershire ...	11·5	Oxfordshire ...	13.3
Berkshire	11·6	Shropshire	13·4
Buckinghamshire ...	11·6	Staffordshire ...	13·4
Kent	11·7	Devonshire ...	13·5
Surrey	11·7	Cheshire	13·6
Worcestershire ...	11·7	Herefordshire ...	13·7
Wiltshire	11·8	Warwickshire ...	13·8
Bedfordshire	12·2	West Riding (Yorkshire)	13·9
Hertfordshire ...	12·3	Nottinghamshire ...	14·0
Rutland	12·3	Lincolnshire ...	14·1
Hampshire	12·4	Cornwall	14·4
Sussex	12·4	Huntingdonshire ...	14·4
Derbyshire	12·5	East Riding (with York)	14·4
Gloucestershire ...	12·5	Northumberland ...	14·6
Westmoreland ...	12·5	Durham	14·7
Dorsetshire	12·6	Lancashire	15·0
Somersetshire ...	12·6	Cumberland ...	15·2
London	12·7	North Riding (Yorkshire)	15·4

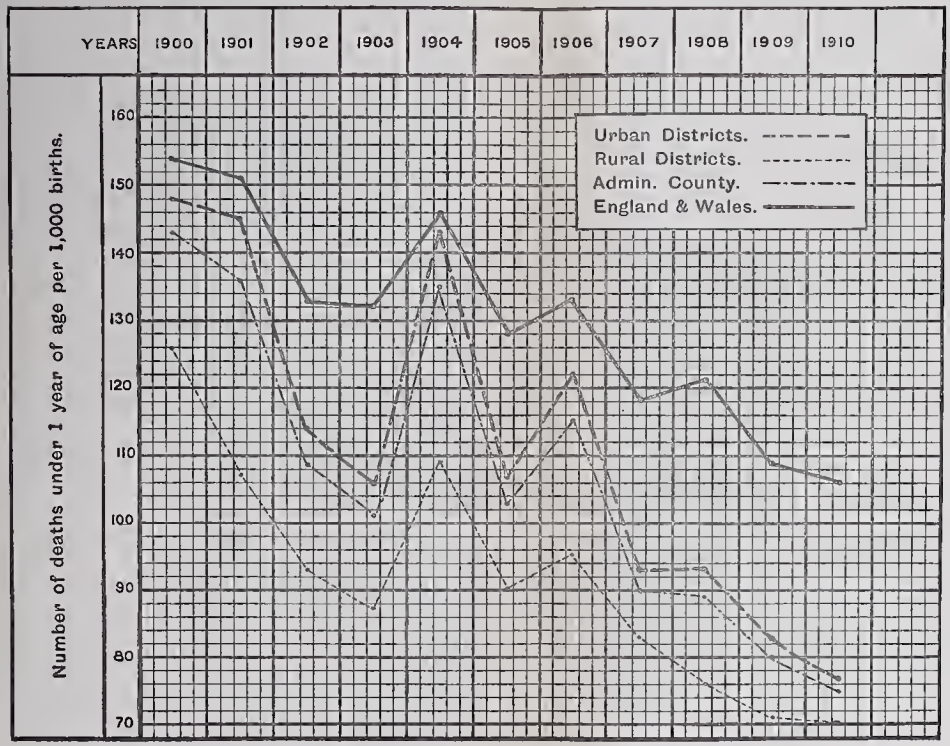
The only towns which can be said to have excessive death-rates are Halstead and Braintree, the two small manufacturing towns of Essex.

	Death-rate as given by the Medical Officers.	Corrected by Census Returns.
Halstead ...	14·9 ...	14·9
Braintree ...	14·2 ...	12·8

The Medical Officer for Braintree had considerably under-estimated the population hence the very marked error in his calculated death-rate. These towns have usually a death-rate above the average and the cause is worthy of careful investigation.

Some of the Urban Districts have a very low death-rate, but as a rule these low rates only occur in comparatively small districts and are exceptional.

Chart 1, showing INFANTILE MORTALITY in Urban and Rural Districts and Administrative County of Essex, and England and Wales, 1900-1910 (inclusive).



INFANTILE MORTALITY.

In dealing with this subject, errors in the estimate of populations have no effect since the rates are based upon two definite factors, the number of births registered during the year, and the number of deaths of infants under 1 year of age registered during the same period. 1421 infants died in the urban districts, and 394 in the rural districts, giving a total of 1815 for the County. The number of births has already been given, and from these the following Table has been prepared :—

TABLE V.

INFANTILE MORTALITY.

Deaths of Infants per 1,000 Births.

	1910.	1909.	1908.
Urban Districts	77	83	93
Rural Districts	70	71	76
Administrative County	75	80	89
England and Wales	106	109	121

The infantile mortality continues to fall, and is falling more rapidly in Essex than in England and Wales. From time to time this fall is interrupted by a marked rise, and these variations are well brought out in the attached chart. Whatever the cause, it is obviously one which affects urban and rural districts alike, and which when it affects Essex affects the whole country also. The cause of the sudden rises and falls is undoubtedly the character of the summer season, but the cause of the steady decline shown on smoothing out the curves, is the more effective sanitary administration and the increasing attention which is being bestowed upon our infantile population, such care often commencing before birth, and affecting the child through the mother.

In the urban districts the highest mortality occurred at Leigh-on-Sea (104), Barking came next with 97·7, and the following had a rate of 90 or higher, Colchester, East Ham and Frinton. In the rural districts 90 was only exceeded in Tendring and Chelmsford, and 80 only in Billericay, Bumpstead, Maldon and Orsett. Last year's report contained a Table showing that, taking an average for 10 years, certain districts had a much higher infantile mortality than others, and all the urban districts with a high mortality for the past year are amongst those with a persistently high rate. Taking a series of years, Barking heads the list, followed by East Ham, Epping and Southend. Why places like Southend and Frinton should show an excessive mortality amongst infants is difficult to understand.

The mortality amongst infants is by far the highest during the first week of life, and it is somewhat curious that a larger proportion die during the first week in the country districts than in the towns. Thus in the urban districts the mortality was 28·5 per cent., whilst in the Rural it was 33 per cent. of those dying within a year. After attaining the age of 3 months the chances of life are distinctly more favourable in the country.

TABLE VI.

PROPORTION OF INFANTS DYING AT CERTAIN AGES OUT OF EACH 100 DYING BEFORE ATTAINING THE AGE OF 1 YEAR.

	Urban Districts.	Rural Districts.
Proportion dying before attaining the age of 1 week	28·5	32·99
,, over 1 week but under 1 month...	15·55	17·01
,, over 1 month but under 3 months	16·61	16·75
,, over 3 months but under 6 months	16·4	14·21
,, 6 months	22·94	19·04
Total	100	100

Taking the chief causes of death as given in Table VII., there are more premature births and more deaths from debility and diarrhœal diseases in the towns than in the rural areas, whereas in the rural districts more deaths occur from convulsions. The larger proportion of deaths due to injury at birth, in the rural districts is probably accidental as such a marked difference has not been observed before.

There is no reason why the infantile mortality in towns should be higher than in the rural districts, as mothers in towns possess many advantages over those in the country. Skilled attendance is more readily available, medical men and nurses are always within call, and in many towns there are female inspectors to see to the sanitary condition of the premises and to give advice to parents and prospective parents. Moreover the strongest and healthiest of the young people from the villages move into the towns and generally marry early. Usually also these immigrants are better educated and more intelligent than those left behind. These advantages are however more than counter-balanced by the difference in feeding. The infant born in the town may be stronger at birth, but if not properly fed, the less strong country breast fed infant has a better chance of survival.

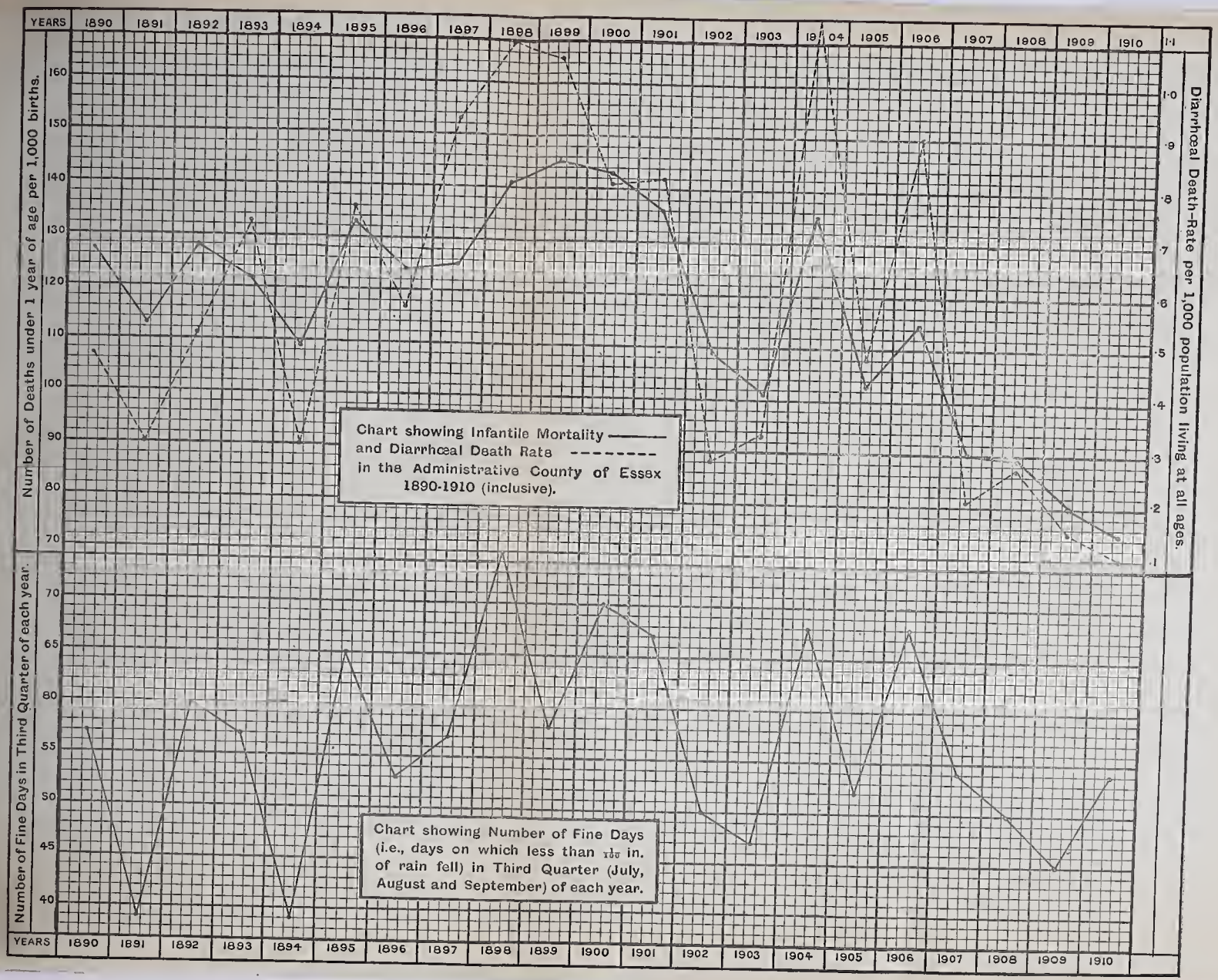

YEARS
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
Number of Deaths under 1 year of age per 1,000 births.
160
150
140
130
120
110
100
90
80
70
Diarrhœal Death-Rate per 1,000 population living at all ages.
1·1
1·0
·9
·8
·7
·6
·5
·4
·3
·2
·1
Chart showing Infantile Mortality ——— and Diarrhœal Death Rate - - - - - - - - in the Administrative County of Essex 1890-1910 (inclusive).
Number of Fine Days in Third Quarter of each year.
70
65
60
55
50
45
40
Chart showing Number of Fine Days (i.e., days on which less than 1/100 in. of rain fell) in Third Quarter (July, August and September) of each year.

TABLE VII.

	Urban Districts.	Rural Districts.
Death-rate per 1,000 Births from :		
Premature Birth	18·07	16·8
Congenital Defects	5·69	6·54
Convulsions	4·1	6·37
Diarrhœa	2·7	·88
Debility	13·5	10·26
Tubercular Diseases...	2·64	2·11
Injury at Birth	·59	1·06

The subjoined Chart (II) is particularly instructive. It is based upon the statistics for the country for the last 20 years. In the upper portion of the Chart one line shews the infantile mortality for each year, and the other the number of deaths from diarrhœa per 1000 population. These deaths nearly all occur amongst infants and the chart shews that a year with a high diarrhœal death-rate is a year of high mortality amongst infants. The two cases synchronise so completely that the connection may be said to be absolutely proven.

What causes this excessive prevalence of diarrhœal diseases? This is a subject to which I have given much thought, and as I have always felt certain that it had some connection with the seasons, I have always recorded the results of meteorlogical observations. Temperatures, rainfall, humidity of the atmosphere, etc. have often been charted without finding any distinct relationship, but reflecting that diarrhœal diseases chiefly occur in the autumn I confined my attention to the months of July, August and September and finally found the connection of which I was in search. The actual amount of rainfall during those months indicated some relationship, but when instead of taking the rainfall the number of wet or fine days was taken the relationship stood revealed.

At the bottom of Chart II. the curve gives the number of days in which less than one-hundredth of an inch of rain fell during the autumn months of each of the last 20 years. Comparing the upper and lower curves on the chart it is at once seen that the years with the greatest number of fine days were the years with the greatest diarrhœal death-rate and the highest infantile mortality, and that the years with few rainless days are the years with a low infantile mortality and low diarrhœal death-rate.

The only year which shows any marked discrepancy is 1899, and this at present may be looked upon as the exception which proves the rule. That there is a very intimate relationship between a fine autumn and infantile mortality is certain, but what is the real relationship? Fine weather, *per se*, is not inimical to health. The fine weather must induce some condition which is prejudical to health. In continued dry weather the atmosphere may become laden with germs, some of which are disease

producing. Rain washes these out of the air, hence, when there is a large proportion of rainy days the air is relatively purer. The fine weather, also, may encourage the breeding of flies and other insects, and these may be intimately connected with the production of disease. Usually, I believe, but no means of proof at present exists, a dry autumn is associated with an abundance of flies, but this is probably not invariably the case. Hence, if flies are assumed to be the chief cause of disease, it may be that in 1899, though the season was fairly fine, yet that for some reason flies were not very abundant. The whole subject requires further investigation. Without doubt flies are bred in filth, delight in filth, and when they come into the houses they infect with filth everything upon which they alight. Probably, they are especially dangerous when they gain access to milk. In dry, hot seasons, milk is more prone to decomposition, and it is more liable to fly infection, hence children fed on cows milk or food containing cows milk will be much more prone to be affected than children fed naturally by the mother.

In many districts serious efforts are being made to reduce the infantile mortality, by the adoption of the Early Notification of Births Act and the provision of female sanitary inspectors, whose duties are to visit parents, where necessary, and to see that everything possible is being done to foster the proper development of the infants.

In the following districts the Early Notification of Births Act has been adopted :— Barking (1907), Grays and Ilford, and in each district a lady health visitor has been appointed.

Barking. In this district, out of 876 births, 497 or more than half were notified by midwives. All these cases are visited by the lady inspector at once unless a request is received not to do so. In a few instances the mother was found not to be receiving proper assistance and was put directly in communication with the Relieving Officer. An infants' clinic has been established at the Old Town Hall. Here the babies are weighed and examined and the mothers given advice and assistance. "About 800lbs. of a dried milk was supplied to the parents through chemists in the town at about cost price, in cases needing it, in a few instances below cost, the balance being defrayed from a private source." The energetic action taken here should speedily decrease the infantile mortality and end its unenviable notoriety of having the highest death-rate amongst infants in the whole county.

Grays. Miss Button, the Inspector, visited 403 mothers during the year. Some others were not visited either on account of the death of the infants or because of removal or failure of the Inspector to gain admission to the house.

Colchester. Apparently the Council is considering the question of adopting the Early Notification of Births Act, as the Medical Officer of Health says: "Application was proposed to be made for the adoption in the Borough of the Notification of Births Act, 1907. In connection with this Act a Health Visitor will shortly be appointed." Leaflets are widely distributed and a lady has voluntarily assisted in distributing them and explaining them to mothers. About 1,000 visits were made to parents, and it was found that 78 per cent. of the infants under six months of age were entirely breast fed. The boat-shaped bottle for feeding is steadily gaining the confidence of parents.

Ilford. The Medical Officer of Health is more than satisfied with the effect of the adoption of the Notification of Births Act, and the work of the Health visitor. "The method of procedure adopted has been for the Health Visitor to pay a visit to the home three weeks after the birth of a child if a doctor is in attendance, and 10 to 14 days after if a non-medical person is in attendance. At the visit, particulars are obtained, printed matter containing the usual information is left, and more or less personal advice according to the circumstances of the case. Further visits are paid if deemed desirable from the information obtained." The Medical Officer of Health thinks the results more than justify the expenditure. He adds: "A fear has frequently been expressed that this work impairs the responsibility of the parent, but I am quite convinced that the very reverse applies, and that the effect is to increase and not diminish the parents' responsibility."

Southend. "The Notification of Births Act has not been adopted in this Borough, and there are no official health visitors, although the school nurse in the course of her duties is brought into intimate contact with the poor in their homes, and is often able to give advice as to the care of infants. Pamphlets issued by the Health Department, and dealing with the management and feeding of infants, are handed by the Registrar to parents when the latter visit his office to register the births of children, and these are doubtless of some value in educating the public as to correct methods. There is certainly less evidence nowadays of improper feeding than was formerly the case, and much greater care is being taken in preventing milk becoming contaminated by dust, dirt, flies, etc., as also in securing the cleanliness of feeding bottles."

Referring to the decreasing infantile mortality the Medical Officer of Health says: "Practically all the deaths in the first week of life, and the vast majority of those which occur in the first month of life, and indeed in the first three months of life, are due to antenatal conditions, the factors in the causation of which are, as already explained, very complex and but little known, and therefore cannot be readily controlled; the majority of the deaths of infants after the age of three months has been attained are on the other hand due to preventable causes, and hence it is particularly gratifying to find that their proportion to the whole is steadily falling."

Walthamstow. The Medical Officer of Health strongly recommends the Council to adopt the Notification of Births Act and to employ a Health Visitor. He advances the following cogent arguments in favour of this course. "The importance of a low infant mortality has been specially noted by the Registrar-General, who points out in his 71st Annual Report that the conditions which tend to a high mortality in the first year of life operate with adverse effects during the succeeding years of life."

"The Chief Medical Officer of the Local Government Board has also demonstrated that excessive infant mortality implies excessive child mortality and excessive mortality right up to adult life, and in the supplement to his report for 1909-10, he shows in diagramatic form, that the superior prospects of life of those having lived under the conditions in which low infant mortality occurs persist right through life,

and the conclusion is drawn that as each sanitary authority and the inhabitants of its district succeed in removing the conditions favouring high infant mortality they are removing the conditions producing a high rate of mortality in youth and throughout adult life."

In the rural districts few if any remarks are made about infantile mortality. No doubt there are greater difficulties in dealing with this subject in scattered populations than in towns. The supervision of midwives and the increasing number of nurses working in rural parishes is doubtless having some effect and if Registrars were supplied with suitable leaflets to give to parents when registering births possibly these would do some good, but a little personal admonition is worth a great deal of printed advice. Lady health visitors would be exceedingly useful in rural districts as they could not only visit mothers, but when an epidemic threatened, as of measles or whooping cough, they could search out unreported cases, advise parents about isolation, and point out the advantages of cleanliness, ventilation, etc. When engaged in connection with any infectious disease the visiting of parents in other localities after the birth of a child would have to be temporarily suspended. There would doubtless be many other matters to which she could attend, leaving the Sanitary Inspector more time for his work under the Housing Act, Dairies and Cowsheds Orders, etc. If some rural district would set the example probably others would soon follow.

DEATHS AT VARIOUS AGE PERIODS.

The following Table gives the number of deaths at different age periods in the urban and rural districts, for each hundred deaths. Too much stress must not be laid upon it, since the age distribution in the two districts varies considerably. In the rural districts there is a larger proportion of aged people than in the urban districts, and this difference may be due to two different causes, having a markedly different significance. If the excess of aged people is due to the average length of life being longer under rural conditions, then the larger proportion of deaths of people over 65 is a natural consequence and a proof of the advantage of living under rural conditions. If on the other hand the excessive proportion of deaths of aged people is due to a

TABLE VIII.

PERCENTAGE OF DEATHS AT VARIOUS AGES.

	Urban Districts.	Rural Districts.
Under 1 year of age	18·8	13·2
Between 1 and 5 years	8·2	4·8
,, 5 ,, 15 ,, ...	3·7	2·4
,, 15 ,, 25 ,, ...	4·2	3·6
,, 25 ,, 65 ,, ...	33·9	28·0
Over 65 years	31·2	48·0
	100·0	100·0

decreased proportion of the young and middle aged due to migration, this excess has no such significance. Whatever the cause there is no gainsaying the fact that the mortality amongst the young is lower in the villages than in the towns, and that many more people in the country attain the age of 65 years than in the towns.

In 1909 the urban figures showed a higher percentage at all ages up to 65, and a lower percentage (27·4) over 65. This may be due to an improvement in health conditions, or to the mild winter, or to an increased proportion of elderly people in the larger urban areas.

DEATHS FROM VARIOUS CAUSES.

1. CANCER.

The mortality from this disease still shews signs of increasing. In the urban districts 1 person out of every 14 died from Cancer, and in the rural districts 1 out of every 12. It must be remembered, however, that this apparent excess is entirely due to the larger proportion of middle-aged and elderly people in the country districts. When corrected so as to enable a fair comparison to be made it is found that the death-rate from Cancer in both the rural and urban districts is ·82 per 1,000 persons.

The actual numbers of deaths from Cancer during the last 10 years is given in Table IX., and the rate per 1,000 population in Table X.

TABLE IX.

DEATHS RECORDED FROM CANCER SINCE 1900.

	Rural Districts.	Urban Districts.	Administrative County.
1900	215	312	527
1901	220	344	562
1902	266	316	582
1903	246	367	613
1904	213	433	646
1905	245	476	721
1906	226	504	730
1907	249	369	618
1908	251	561	812
1909	270	578	848
1910	310	605	915

TABLE X.

CANCER DEATH-RATE PER 1,000 POPULATION.

	Administrative County.	England and Wales.
1871—80 ...	·48 ...	·47
1881—90 ...	·54 ...	·59
1891—1900 ...	·66 ...	·75
1901—1905 ...	·71 ...	·86
1906 ...	·76 ...	·92
1907 ...	·63 ...	·90
1908 ...	·84 ...	·92
1909 ...	·86 ...	·95
1910 ...	·88 ...	Not yet published

The only consolation which can be derived from this Table is that the mortality from Cancer in Essex is below that for England and Wales. During the past year the mortality was higher than in any preceding year both in the Urban and Rural Districts.

The Cancer death-rates have been calculated from the corrected population and are therefore a little higher than were given in previous year's reports.

Cancer causes more deaths than any other single disease save tuberculosis, but whilst the latter is declining the former is slowly but steadily increasing, and at present we are absolutely without knowledge with reference to its cause or prevention. There is little doubt, however, that many lives are sacrificed, or at least shortened from the neglect of patients to call in medical aid at a sufficiently early stage. If taken sufficiently early there is always a chance of operative interference saving life or of prolonging life, but in the late stages nothing can arrest the progress of the disease.

The following leaflet has been circulated amongst midwives, but the information it contains should be made known to all women :—

"CANCER OF THE WOMB.

"This disease is probably the greatest dread of women.

"Unless treated early by removal it always ends in death.

"At first it is only in the part attacked, and is not 'in the system.'

"If removed early it can frequently be cured.

"Every day, and even every minute, is of importance, and no time at all should be lost.

"The earliest symptom is generally a red discharge which does not occur at the proper time for the monthly period. This may be quite slight.

"If the womb bleeds on touch this generally means Cancer.

"The discharge does not generally smell bad, nor is there pain, at first.

"A bad-smelling discharge should always be attended to at once.

"Any discharge, either red or offensive, in a woman in whom the monthly periods have ceased for some time should be attended to at once.

"It is not true that the 'the Change of Life' is properly marked by floodings, or by irregular bleedings, or by special discharge of any kind.

"It often happens that a woman who has floodings or irregular bleedings or marked discharge about the time of 'the Change of Life' is told by her friends that it means no harm and is 'only the Change of Life.'

"Instead of going to a doctor she does nothing until the disease is so far advanced that no operation will save her, and she throws away her life.

"All women who have floodings, or irregular bleedings, or marked discharge of any kind (especially if offensive, but also even if not offensive) should go at once to a properly qualified medical practitioner, and ask to be examined thoroughly. If women did this many lives could be saved.

"All women (such as nurses and midwives, but not only they) who are especially liable to be consulted on these matters, should avoid expressing any opinion of their own, but should advise the enquirer to go at once to a properly qualified medical practitioner and insist on being examined.

"F. H. Champneys, M.D., F.R.C.P.,

"*June, 1908.* "Chairman of the Central Midwives Board.

"This leaflet was drawn up and issued at the request of the Board."

2. TUBERCULAR DISEASES.

In the urban districts 611 persons died from phthisis and 236 from other tubercular diseases, the numbers in the rural districts being 189 and 57 respectively.

TABLE XI.

Death-rates per 1,000 Population from Tubercular Diseases.

	From Phthisis.			From other Tubercular Diseases.		
	Essex Urban.	Essex Rural.	England and Wales.	Essex Urban.	Essex Rural.	England and Wales.
1910	·80	·72	...	·30	·215	...
1901-10	·84	·78	1·17	·39	·34	·49

The death-rate from tubercular diseases is no less than ·47 per 1,000 less than that for England and Wales, in other words these diseases cause 30 per cent. fewer deaths in Essex than in the country as a whole, and each year sees a slight diminution in the mortality.

In Brentwood urban and Bumpstead rural districts no deaths occurred from phthisis during the year.

The steps which are being taken to eradicate the disease are enumerated in a later section.

3. THE SEVEN PRINCIPAL ZYMOTIC DISEASES.

The deaths from all these diseases were unusually few during the year under consideration, and far fewer than in any previous year, and the diminution was as marked in the urban as in the rural districts. Compared with the past 10 years the deaths from the chief infectious diseases were only about one-third the average. Fevers diminished to one-third, diarrhœal disease to one-fourth, and all the others show a most marked decrease.

More efficient sanitary administration is responsible for most of this decrease, but I am inclined to think that the cool summers and mild winters have had some effect. It is impossible to predict to what extent the death-rates from these preventable diseases may fall. There can be no question that ultimately much lower rates will become general.

In all cases the death-rate during 1910 were considerably below those for England and Wales. Another proof of the healthiness of the county and of the general efficiency of the administrative ability of the Sanitary Authorities. As this efficiency is not common to all authorities, it is obvious that as the efficiency increases the prevalence of most of the infectious diseases and consequent deaths, will also decrease.

TABLE XII.

DEATHS FROM THE SEVEN PRINCIPAL ZYMOTIC DISEASES.

	Urban Districts.	Rural Districts.	Administrative County.
Small-pox	2	0	2
Measles	65	19	84
Scarlet Fever	34	4	38
Whooping Cough	134	27	161
Diphtheria	75	13	88
Typhoid Fever } Fevers	13	3	16
Puerperal Fever } Fevers	14	3	17
Epidemic Diarrhœa	102	11	113
Totals	439	80	519
Totals for 1909	662	129	793
,, for 1908	769	193	962

TABLE XIII.

DEATH-RATES PER 1000 POPULATION FROM EACH OF THE SEVEN PRINCIPAL ZYMOTIC DISEASES, 1910.

	Small-pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria.	Fevers.	Diarrhœa.	Totals.
Urban Districts	·002	·09	·045	·17	·10	·035	·13	·57
Rural Districts	·0	·07	·015	·11	·05	·023	·04	·31
Administrative County	·001	·085	·035	·15	·085	·03	·11	·496
England and Wales	·0	·23	·06	·24	·12	·05	·29	·99
Administrative County, 1901-1910	·013	·19	·07	·24	·20	·09	·47	1·27

4. OTHER CAUSES OF DEATH.

The deaths from various diseases, compared with those from the same diseases in the previous year are given below.

	1910.	1909.
Influenza ...	162	... 199
Bronchitis ...	867	... 993
Pneumonia ...	590	... 717
Heart Disease ...	1035	... 974
Accidents ...	298	... 254
Suicide ...	89	... 99

A prolonged and severe winter would greatly increase the deaths from lung disease, as would also an epidemic of influenza.

There is a curious difference shown every year between the urban and rural death-rate from lung diseases and heart diseases. In the towns the deaths from diseases of the lungs are usually from two to three times as numerous as those from diseases of the heart, whereas in the rural areas the numbers are about equal. During 1910 the discrepancy was not quite so great.

	Deaths from lung diseases.	From heart diseases.
Urban districts ...	1110	... 668
Rural districts ...	375	... 367

The cause is, no doubt, the larger proportion of elderly people in the rural areas. In old age, heart failure, in the commonest cause of death.

The appended chart shews in a graphic form the continual fall in the death-rate from the infectious diseases and from all other causes for 21 years. Only the rates for the census years are really accurate, but the error is so small as not to appreciably affect any conclusions which may be drawn from their study. That the decline has been marked and is continuous is certain. The death-rate from all causes is now one-third less than it was 20 years ago, and the deaths from the zymotic diseases are less than half. In other words only two persons die annually now where three died before, and only one dies from an infectious disease where two died before. This is a remarkable triumph for sanitary science and public health administration and must repay many-fold the money which has been spent to render such a triumph possible.

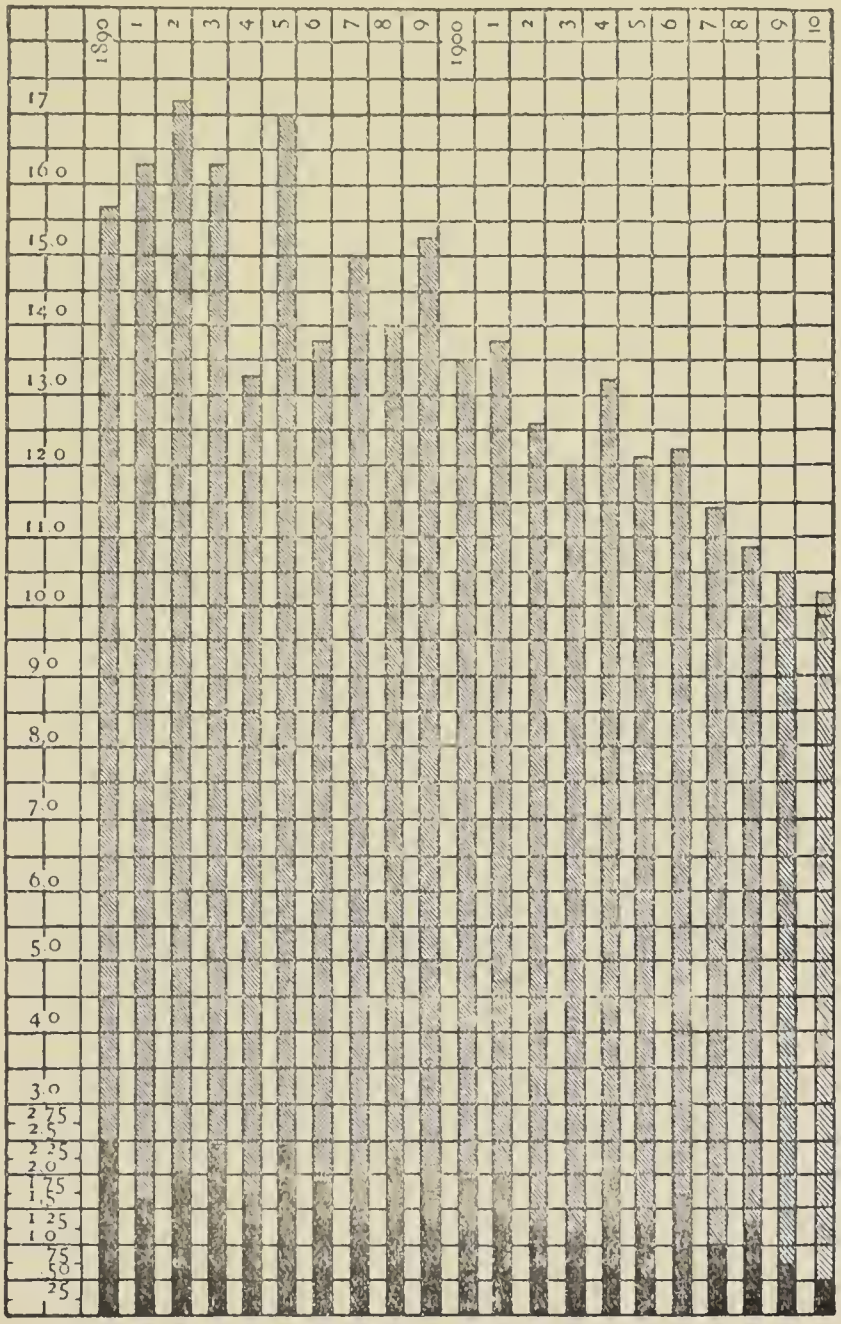
BIRTH-RATES AND DEATH-RATES IN THE VARIOUS DISTRICTS.

The census returns have necessitated the re-calculation of all the statistics. In the summary of the annual reports the figures given are those of the Medical Officer of Health. In many instances the population had been so accurately estimated that the rates given needed no correction but in others the population had been so markedly over-estimated as to seriously affect the statistics. In Table XIV, the birth-rates and death-rates are based upon the population for 1910, as calculated from the census returns. The infantile mortality figures being based on the number of infants born and the number which died under the age of one year is independent of any estimate of the population and therefore needed no correction.

In comparing the various rates in different districts two points must be remembered or erroneous conclusions may be drawn.

1. That in comparatively small districts the yearly variations are so great that the rates for any one year may differ widely from the average.

2. That the death-rate amongst elderly people is far greater than amongst the young, consequently in any district with an excessive proportion of elderly people the death rates will naturally be higher than in a district with a larger proportion of young persons, the healthiness of the localities being the same.



COUNTY DEATH RATES.

Black from the seven principal Zymotic Diseases.

Shaded from "All other Causes."

TABLE XIV.

BIRTH-RATES AND DEATH-RATES.

	URBAN DISTRICTS.	Birth-rate.	Infantile Mortality	Death-rates from			Medical Officers of Health.
				All causes.	Cancer.	Phthisis.	
1	Barking	29·7	97·7	10·7	·53	·82	A. Bygott, M.D., D.P.H.
2	Braintree	20·6	24	12·8	1·5	·69	Percy R. Stevens, L.R.C.P., M.R.C.S.
3	Brentwood	20·0	44·4	10·7	·74	0	S. Frazer, L.R.C.P., L.R.C.S
4	Brightlingsea	16·16	12·1	8·86	·79	·59	E. P. Dickin, M.D., C.M.
5	Buckhurst Hill	21·4	28·5	9·2	1·23	·4	Chas. R. Dykes, M.R.C.S., L.R.C.P.
6	Burnham	22·1	42 8	12·0	1·0	1·0	W. C. P. Smith, M.R.C.S., L.R.C.P., D.P.H.
7	Chelmsford	18·9	50·2	9·4	·78	·61	H. W. Newton, M.R.C.S., L.R.C.P., D.P.H.
8	Chingford	22·6	62·5	7·3	·76	·25	G. F. Fulcher, M.B , C.M.
9	Clacton	19·3	54·3	10·0	·30	·84	Jno. W. Cook, M.D.
10	Colchester	22·6	90	12·0	·78	1·0	W. Corfield, M.B., D.P.H.
11	East Ham	26·6	90	10·3	·72	·86	W. Benton, M.R.C.S., D.P.H.
12	Epping	21·9	54·3	11·4	1·2	1·2	Trevor Fowler, L.R.C.P. & S.I., D.P.H.
13	Frinton	15·7	90·9	7·25	·70	2·9	H. W. Godfrey, M.D.
14	Grays	28·1	58	9·2	·89	1·0	John A. Ward, M.D.
15	Halstead	17·2	76·1	14·9	1·1	1·3	C. Gordon Roberts, M.A., M.B., B.C.
16	Harwich	23·7	79·6	9·8	·53	0·9	H. Gurney, M.R.C.S., L.R.C.P.
17	Ilford	24·2	73·8	8·7	·89	0·67	C. F. Stovin, M.A., L.S.A., D.P.H.
18	Leigh-on-Sea	19·5	104	11·7	1·35	1·0	W. D. Watson, M.R.C.S., L.R.C.P.
19	Leyton	24·4	63 4	9	·70	·82	J. F. Taylor, M.R.C.S., D.P.H.
20	Loughton	21·8	59·8	7·4	1·12	·38	A. Butler Harris, M.A., M.B., B.Ch. Oxon.
21	Maldon	22·3	70	11·8	1·04	·69	H. Reynolds Brown, M.D., C.M.
22	Romford	23·1	68·7	10·5	·88	1·0	A. Wright, M.R.C.S.
23	Saffron Walden...	16·3	59	11·8	·64	·48	W. Armistead, M.B., F.C.S.
24	Shoeburyness	31·8	44·8	9·3	1·2	·81	M. H. Raper, M.D., D.P.H.
25	Southend-on-Sea	19·4	87·8	10·4	1·1	·87	C. G. Pugh, B.Sc., M.D., D.P.H.
26	Waltham Holy Cross	21·2	34·4	10·3	·88	·74	J. Damer-Priest, M.R.C.S., D.P.H.
27	Walthamstow	26·3	88·5	9·7	·61	·73	J. J. Clarke, L.R.C.P.I., D.P.H.
28	Walton-on-the-Naze	17·6	52·6	11·6	1·39	·92	J. C. Brockwell, M.R.C.S., L.R.C.P.
29	Wanstead	15·0	30	6·8	·81	·60	F. Argles, M.R.C.P.Ed., M.R.C.S.
30	Witham	19·5	58	11·2	1·15	·58	K. C. Gimson, M.B., B.Ch.
31	Wivenhoe	17·9	46·5	10·0	·80	1·26	G. Pender-Smith, L.S.A.
32	Woodford	19·5	71·2	7·3	1·0	·33	W. G. Groves, M.R.C.S.
	Urban Rates	23·7	77·1	9·95	·88	·80	

TABLE XIV.—Continued.

BIRTH-RATES AND DEATH-RATES.

	Rural Districts.	Birth-rate.	Infantile Mortality	Death-rates from			Medical Officers of Health.
				All causes.	Cancer.	Phthisis.	
1	Belchamp	18·8	54·9	13·4	2·5	·20	J. Sinclair Holden, M.D.
2	Billericay*	19·1	82·8	8·4	1·1	·47	D. Wells, M.B., CH.B.
3	Braintree	17·3	54·1	13·4	1·4	·93	H. G. K. Young, M.R.C.S., L.R.C.P.
4	Bumpstead	23·5	82	13·1	1·5	·0	Wm. Armistead, M.B., F.C.S.
5	Chelmsford	19·2	96	12·2	1·1	·66	John C. Thresh, M.D., D.Sc., D.P.H.
6	Dunmow	23·3	50·8	12·3	1·56	·93	Edmund E. Goodbody, M.D.
7	Epping	21·2	64·6	12·0	1·1	·8	Trevor Fowler, L.R.C.P. & S.I., D.P.H.
8	Halstead No. 1.	17·7	11	9·4	1·04	1·16	J. Henry Ashworth, M.D.
9	Halstead No. 2.	21·9	56	9·4	1·2	·35	J. B. Bromley, M.R.C.S.
10	Lexden and Winstree	20·0	38·1	11·6	1·2	·76	Jno. W. Cook, M.D.
11	Maldon	22·5	88	12·9	1·3	·93	John C. Thresh, M.D., D.Sc., D.P.H.
12	Ongar	22·6	67	11	1·1	·47	W. R. S. Roberts, M.B., Ch.B.
13	Orsett	24·5	85·9	10·3	0·89	·73	W. Allingham, M.R.C.S., L.R.C.P.
14	Rochford	23·4	72·4	9·6	0·44	·56	M. H. Raper, M.D., D.P.H.
15	Romford	24·9	63·8	10·3	1·1	·94	Alfred Wright, M.R.C.S.
16	Saffron Walden	22·6	65	12·4	1·87	·74	Wm. Armistead, M.B., F.C.S.
17	Stansted	20·4	48·6	12·6	1·4	·43	R. A. Dunn, M.D., D.Hy.
18	Tendring	22·0	91·8	12·6	0·9	·80	Jno. W. Cook, M.D.
	Rural Rates	21·4	69·7	11·5	1·17	·72	

*Population taken as 19,000. The number of persons in the Warley Barracks and County Asylum is not known but has been estimated at 2,557 and this has been deducted from the total population in June, 1910.

SECTION II.

PREVALENCE OF INFECTIOUS DISEASE.

TABLE XV.

TOTAL NUMBER OF CASES OF INECTIOUS DISEASES NOTIFIED DURING THE 10 YEARS 1901-1910.

Year.	Small-pox	Scarlet Fever.	Diphtheria and Membranous Croup.	Fevers—Typhoid and Continued.	Puerperal Fever.	Erysipelas.	Totals.	Rate per 1,000 population.
1901	227	2,961	2,628	790	40	716	7,362	9·1
1902	1334	3,251	2,017	987	44	857	8,490	9·9
1903	96	2,528	1,659	589	42	750	5,664	6·4
1904	112	3,534	1,764	453	51	812	6,726	7·4
1905	3	4,563	1,453	398	45	863	7,325	7·8
1906	0	4,434	1,869	366	56	833	7,558	7·8
1907	0	5,138	1,918	243	41	758	8,098	8·0
1908	3	4,490	1,767	266	39	738	7,303	7·0
1909	0	3,645	1,371	161	42	688	5,907	5·5
1910	7	2,338	1,062	139	38	655	4,239	3·8
Average ...	178	3,688	1,750	439	44	767	6,867	7·3

In proportion to the population far fewer cases of infectious disease were notified during 1910 than in any previous year since notification commenced. With the exception of small-pox each disease shows a marked decrease. The enormous and continuous decline in the number of cases of typhoid fever is particularly noticeable.

The number of cases of each disease notified in Table XVI. is based upon the monthly returns of the Medical Officers of Health. When these totals are compared with those in the annual returns a slight discrepancy is observed. The cause of this was referred to in last year's Report.

TABLE XVI.

Meteorological Data and Prevalence of Infectious Diseases
For the Year ending December 31st, 1910.

Month.	Meteorological Data.					Infectious Diseases Notified.					Total.
	Mean Temperature.	Mean Daily Range.	Relative Humidity	No. of Rainy Days.	Rainfall.	Small-pox.	Diphtheria and Croup.	Fevers.	Scarlet Fever.	Erysipelas.	
January... ...	38·6	11·3	92	16	1·19	4	107	12	192	53	368
February ...	40·7	12·7	89	20	2·24	1	83	13	223	54	374
March	41·8	18·3	83	8	·95	2	77	4	210	64	357
April	46·2	17·5	74	18	1·21	0	81	12	174	45	312
May	52·8	18·0	78	19	3·31	0	83	11	159	49	302
June	59·3	20·0	78·5	14	2·03	0	57	9	190	36	292
July	58·3	14·9	82	12	1·66	0	66	8	201	30	305
August	60·7	17·0	82	18	2·5	0	58	13	124	39	234
September ...	55·2	16·8	86	8	·88	0	85	26	192	48	351
October	52·7	13·5	91	15	1·52	0	116	29	232	65	440
November ...	37·9	14·1	92	14	3·24	0	94	15	221	83	413
December ...	43·1	9·7	92	21	3·38	0	132	24	214	63	433
Means & Totals	48·9	15·3	83·5	183	24·11	7	1039	176	2332	627	4181

Rainfall for Year in Different Districts.

Barking ...	... 22·75
Buckhurst Hill	... 25·75
Belchamp	... 27
Clacton-on-Sea	... 21·63
Colchester	... 21·9
East Ham	... 23·6
Halstead	... 24·5
Ilford ...	... 20·25
Leyton ...	... 22·26
Saffron Walden	... 25·39
Southend	... 22·3

The Local Government Board now require the returns of cases of disease notified to be made weekly, and a copy to be sent both to them and the County Medical Officer of Health. The results for the whole of England and Wales are then tabulated and sent to every Medical Officer on the Friday of the week following.

In consequence of this the issue of the County monthly returns has been discontinued, and a quarterly one substituted.

During the year there has been no serious outbreak of any disease, but in a few districts certain infectious diseases have been far more prevalent than in other areas, and, as usual, a much larger proportion of the cases has occurred in the urban districts. The largest number of cases notified in any one month was in October and the smallest in August.

The rainfall, 24·1 inches was 2·1 inches above the average for the centre of the County. The summer was comparatively dull and cool and the winter was not severe. These are all conditions which tend to produce a low death-rate, and probably they are not without influence on the prevalence of infectious diseases.

There is a rythmic increase and decrease in prevalence of all the infectious fevers, but it is unusual to find the minimum of each occurring in the same year, and there can be no doubt that there are other factors besides the cyclical ones, about which little is known, affecting this County. If the figures in Table XV. are studied the cyclical tendency in regard to scarlet fever is distinctly marked, and the minimum of 1910 corresponds to the minimum of 1903. With diphtheria there is also a cyclic tendency observable, but it is not nearly so marked as in the case of scarlet fever. Typhoid fever shows no such tendency, there is merely an extraordinary and continuous decrease. Puerperal fever alone remains stationary. There are slight annual variations but no decided tendency either to increase or decrease.

During recent years much more attention has been given to these diseases. Slight cases are sought for and the patients isolated, either in their homes or in special hospitals, contacts are kept under better observation, and every medical officer is kept acquainted with the prevalence of these diseases in all the districts around. It appears only natural, therefore, to attribute the great decrease to the more efficient sanitary administration, and the result should encourage all Sanitary Authorities to increase their efforts in the hope that these preventable diseases may be, if not entirely prevented, yet reduced to a minimum, which minimum is doubtless far below anything yet reached in this or any other County

The average number of cases notified per 1,000 population was 4·4 in the urban districts and 2·9 in the rural. These averages were markedly exceeded in the following districts:—

Urban.		Rural.	
Wivenhoe ...	13·8	Chelmsford ...	5·1
Barking ...	6·5	Rochford ...	4·9
Leyton ...	6·7	Epping, Halstead No. 1, Ongar and Romford ...	3·7
Maldon ..	6·9		
Saffron Walden	6·0	Tendring ...	3·4

In Wivenhoe and Maldon urban districts, and Epping rural the excess was due to the prevalence of diphtheria, in all the other districts it was due to scarlet ever.

TABLE XVII.

Distribution throughout the County of Compulsorily Notifiable Infectious Diseases.

	No. of Cases Notified.	No. per 1,000 Inhabitants	Diseases most prevalent.
Urban Districts.			
Barking	195	6·5	Scarlet Fever
Braintree	4	·7	Diphtheria
Brentwood	20	3·0	Scarlet Fever
Brightlingsea	5	1·0	Erysipelas and Enteric Fever
Buckhurst Hill	24	4·9	Scarlet Fever
Burnham	18	5·9	,,
Chelmsford	38	2·1	Diphtheria
Chingford	35	4·5	Scarlet Fever
Clacton	38	4·0	,,
Colchester	151	3·5	,,
East Ham	600	4·6	,,
Epping	21	5·0	Diphtheria
Frinton	1	·7	Scarlet Fever
Grays	58	3·6	,,
Halstead	8	1·3	,,
Harwich	34	2·6	Diphtheria
Ilford	325	4·3	Scarlet Fever
Leigh-on-Sea	24	3·2	,,
Leyton	827	6·7	,,
Loughton	14	2·7	,,
Maldon	40	6·9	Diphtheria
Romford	53	3·1	Scarlet Fever
Saffron Walden ..	38	6·0	,,
Shoeburyness	23	4·7	Diphtheria
Southend-on-Sea ..	207	3·5	Scarlet Fever
Waltham Holy Cross .. .	22	3·1	,,
Walthamstow	498	4·1	,,
Walton-on-the-Naze ..	6	2·8	Diphtheria
Wanstead	65	4·9	Scarlet Fever
Witham	13	3·9	Enteric Fever
Wivenhoe	33	13·8	Diphtheria
Woodford	40	2·2	Scarlet Fever
Total	3478	4·4	
Rural Districts.			
Belchamp	0	0	
Billericay	56	3·0	Scarlet Fever
Braintree	45	2·4	Diphtheria
Bumpstead	8	3·0	Erysipelas
Chelmsford	117	5·1	Scarlet Fever
Dunmow	20	1·2	Erysipelas
Epping	52	3·7	Diphtheria
Halstead, No. 1	18	3·7	Scarlet Fever
Halstead, No. 2	6	1·0	Erysipelas
Lexden and Winstree	49	2·5	Scarlet Fever
Maldon	30	1·8	Diphtheria
Ongar	40	3·7	Scarlet Fever
Orsett	65	2·6	Diphtheria
Rochford	78	4·9	Scarlet Fever
Romford	91	3·7	,,
Saffron Walden	8	·9	Erysipeles
Stansted	2	·3	Erysipelas and Scarlet Fever
Tendring	76	3·4	Scarlet Fever
Total	761	2·9	

SMALL-POX

Seven cases occurred during the year, four of these were in Colchester, two in Grays and one in the Orsett rural district.

Colchester. The following is the Medical Officer of Health's account of the Colchester cases :—

"Upon January 12th, 1910, two cases of small-pox were brought to my notice. The disease was well developed, as both patients had been ill five days. They were at once removed to the small-pox hospital, and every effort made to prevent the spread of the disease. As canvassing was being carried on at the time in connection with the General Election, great anxiety was felt that an outbreak of the disease might ensue. Fortunately, only one person contracted the disease from these cases, and she was a woman who had looked after them from the beginning of their illness.

The seriousness of the disease was greatly increased in her case, as she was daily expecting the birth of a child, and this actually occurred upon the same day that she first showed any signs of small-pox. The child, though the mother had been vaccinated and the child itself vaccinated immediately after birth, when seven days' old showed a small-pox eruption, and both mother and child died within a fortnight of contracting the disease." The two first patients recovered, though the disease was of the confluent type.

Grays. The Medical Officer of Health gives an interesting account of the cases which occurred there. The patient in the Orsett rural district lived in Little Thurrock and is referred to in the following report :—

"The first of the two cases of small-pox was a bargeman, who probably contracted the disease on the coast of Suffolk. He arrived in Grays on March 18th, on the sixth day of his illness. His case was recognised shortly after arrival by Dr. Stuart, but not before he had visited three houses and come into contact with 23 persons. On his journey he had put in at Margate and went ashore twice whilst in an infectious state. Four bargemen with whom he had been closely associated came on to Grays with him, making a total of 23 contacts to be dealt with in this district. Eighteen of these were immediately sought out and vaccinated and all escaped the complaint. Of the remaining five, two were bargemen who remained on their craft, one woman concerning whom information was withheld, and two persons who had returned to their homes in adjoining parishes. None of these five persons were vaccinated and three of them contracted the disease, one residing in Grays. Of the other two, one living in Little Thurrock, and who was not for some unexplained reason kept under observation, visited Grays to do shopping whilst infectious, thus leaving another batch of contacts to be sought out and dealt with, all of whom fortunately escaped infection. Information was immediately sent to the Medical Officers of Health of six separate districts, either visited by the infected case or to which contacts had returned home, and by this means several cases which subsequently arose were recognised at the onset and further outbreaks prevented in other districts."

In the Colchester case doubtless re-vaccination was performed at too late a date to be of any effect and the infant would be infected before birth, in all probability. In the Grays and Orsett districts re-vaccination undoubtedly prevented an epidemic; of the 23 contacts, 18 were re-vaccinated and everyone escaped the disease, of the five who were not re-vaccinated four suffered from small-pox.

SCARLET FEVER.

The average number of cases per 1,000 population notified in the urban districts was 2·5, and in the rural districts 1·4. The neighbourhood of Leyton had the largest number of cases :—

Leyton	4·2
Barking	3·8
Buckhurst Hill and Chingford	3·5
Wanstead ...	3·2

Many cases also occurred in the Chelmsford rural district and in Saffron Walden urban district. The type generally was very mild, as it had been during the two previous years, and it was milder in the rural than in the urban districts. Leaving out of consideration the districts in which only one death occurred, a severe type of the disease prevailed in Grays, Ilford and Leyton where the mortality was from 50 to 100 per cent. above the average. Each year a larger proportion of cases is removed for isolation and hospital treatment.

The following Table shews the relative incidence of the disease in recent years, the varying case mortality and the proportion of cases removed to hospitals in the urban and rural districts.

TABLE XVIII.

	Urban Districts			Rural Districts.		
	Cases per 1,000 pop.	Deaths per 100 cases.	Per cent. removed to hospital.	Cases per 1,000 pop.	Deaths per 100 cases.	Per cent. removed to hospital.
1901	4·3	1·4	39	2·9	1·5	28
1902	4·2	1·3	?	2·8	2·0	?
1903	3·3	2·0	?	1·7	2·6	
1904	4·3	1·8	52	2·7	1·8	49
1905	5·3	1·7	44	3·7	2·1	49
1906	5·0	2·1	55	3·2	2·4	40
1907	5·8	2·0	55	3·0	2·5	53
1908	4·6	1·7	62	3·3	2·4	18
1909	3·5	1·7	67	3·1	1·3	43
1910	2·3	1·7	72·5	1·4	1·1	45

TABLE XIX.

Scarlet Fever.

DISTRICTS.	No. of cases notified.	No. of deaths.	No. of cases removed to hospital.	Cases per 1,000 population.	Deaths per 100 cases.	Percentage of cases removed to hospital.
Urban Districts.						
Barking ...	116	1	99	3·8	·86	85·3
Braintree	0	0	0	·0	0	0
Brentwood	16	0	15	2·4	0	93·7
Brightlingsea	1	0	0	·18	0	0
Buckhurst Hill	16	0	13	3·3	0	81·2
Burnham	11	0	2	3·5	0	18·1
Chelmsford	14	0	10	·7	0	71·4
Chingford	27	0	11	3·5	0	40·7
Clacton ...	18	1	18	1·9	5·5	100·
Colchester	79	1	67	1·8	1·2	84·8
East Ham	329	3	246	2·5	·91	74·7
Epping ...	6	1	5	1·4	16·6	83·3
Frinton-on-Sea	1	0	0	·5	0	0
Grays	28	1	12	1·7	3·5	42·8
Halstead	5	0	3	·8	0	60·0
Harwich ...	3	0	3	·2	0	100·
Ilford ...	198	5	149	2·6	2·5	75·2
Leigh-on-Sea	18	0	0	2·4	0	0
Leyton ...	555	16	364	4·5	2·9	65·5
Loughton	10	0	8	1·9	0	80·0
Maldon ..	1	0	1	·17	0	100·
Romford ...	33	0	27	1·9	0	81·8
Saffron Walden	27	0	6	4·3	0	22·2
Shoeburyness	5	0	4	1·0	0	80·0
Southend-on-Sea ...	143	1	131	2·4	·7	91·6
Waltham Holy Cross	13	0	12	1·9	0	92·3
Walthamstow ...	232	4	189	1·9	1·7	81·4
Walton-on-the-Naze	1	0	0	·5	0	0
Wanstead	43	0	29	3·2	0	67·4
Witham	2	0	0	·6	0	0
Wivenhoe	2	0	0	·8	0	0
Woodford	21	0	9	1·2	0	42·8
Total	1974	34	1433	2·5	1·7	72·5
Rural Districts.						
Belchamp	0	0	0	0	0	0
Billericay	41	0	0	2·2	0	0
Braintree	6	0	5	·33	0	83·3
Bumpstead	1	0	0	·4	0	0
Chelmsford	90	1	71	3·9	1·1	78·8
Dunmow	3	0	3	·19	0	100·
Epping	17	0	5	1·2	0	29·4
Halstead, No. 1	15	0	4	3·1	0	26·6
Halstead, No. 2	0	0	0	0	0	0
Lexden and Winstree	19	0	0	·96	0	0
Maldon	6	0	6	·37	0	100·
Ongar ...	20	1	0	1·8	5·0	0
Orsett ..	19	1	12	·77	5·2	63·1
Rochford	34	0	25	1·9	·0	73·5
Romford	38	0	31	1·5	·0	81·5
Saffron Walden	2	0	1	·2	0	50·0
Stansted	1	0	1	·14	0	100·
Tendring	52	1	0	2·4	1·9	0
Total	364	4	164	1·37	1·1	45·0

SOUTHEND. The following remarks of the Medical Officer of Health are sufficiently interesting to quote:—

"A missed case in June gave rise directly and indirectly to no fewer than 32 cases."

"The mildness of the disease not only renders diagnosis the reverse of easy, but increases the difficulty of tracing missed cases; the reluctance of many of the parents to call in medical advice unless their children are obviously bodily ill undoubtedly causes a large amount of preventable illness and is the source of considerable anxiety to those responsible for the public health. Parents should understand that no child who develops a rash, however slight and transient, should be allowed to return to school until a medical certificate is obtained to the effect that the child is not infectious. The importance of prompt intimation to the Health Department by the Head Teachers and Attendance Officers of suspicious illnesses in school children was again abundantly proved during the year, no fewer than 25 primary cases in houses, and ten secondary cases being first discovered by the Medical Officers as a result of their enquiries resulting therefrom: during the increased prevalence of the disease in June and July, no fewer than 306 visits to the homes of children reported to be ill were made by the Medical Officers, and it is in my opinion solely due to this that the outbreak did not attain much larger proportions."

CHELMSFORD R. The outbreak in this district is referred to in a special report, an abstract of which will be found in another section.

DIPHTHERIA AND MEMBRANOUS CROUP.

Diphtheritic disease is much more fatal than scarlet fever, consequently although the number of cases notified was much smaller the number of deaths was much larger than from scarlet fever. The deaths per 100 cases are only about half as numerous now as they were 15 years ago the drop commencing with the introduction of treatment by means of anti-toxin. By a recent Local Government Board Order all Sanitary Authorities can supply anti-toxin free of charge to persons who cannot afford to pay for it, and it may be used for curative or prophylactic purposes. So far as I can gather it is not largely used for preventing an attack. It does not confer immunity for more than a few weeks, and parents exhibit great reluctance to its being used for this purpose. As a result practitioners rarely use it, unless an outbreak threatens in a community of children.

There has been no such marked diminution in the mortality rate from scarlet fever as from diphtheria, and this indicates some factor affecting diphtheria, which does not affect scarlet fever. In both instances care is now taken to discover mild cases and to remove a larger proportion of them to the hospitals, and the only explanation appears to be that the special curative agent introduced for treatment of diphtheria is the real cause of the reduced mortality.

TABLE XX.

	Deaths per 100 cases of Diphtheria.	Deaths per 100 cases of Scarlet Fever.
1895 ...	20·0 ...	2·2
1896 ...	17·0 ...	1·76
1897 ...	17·1 ...	1·66
1898 ...	16·6 ...	1·56
1899 ...	14·3 ...	1.2
1900 ...	13·5 ...	·96
1901 ...	11·4 ...	1·4
1902 ...	10·6 ...	1·5
1903 ...	8·9 ...	2·2
1904 ...	9·2 ...	1·8
1905 ...	9·7 ...	1·8
1906 ...	12·9 ...	2·2
1907 ...	10·6 ...	2·1
1908 ...	11·6 ...	1·8
1909 ...	8·9 ...	1.6
1910 ...	8·3 ...	1.6

Table XXI. shows that in seven districts not a single case occurred, and in no less than 28 districts the disease did not cause a single death.

In the urban districts Wivenhoe, Maldon, and Epping had the largest proportion of cases, and Epping, Orsett, and Braintree in the rural districts.

Epping (U.) A school outbreak occurred here. "Every case of the disease was removed to the Isolation Hospital, and all were treated with anti-toxin. Contacts, also, had prophylactic doses of the same serum. By these means the outbreak was soon stamped out."

Maldon (U.) Most of the cases were connected with one school, but the Medical Officer of Health says :—

"Its distribution, however, was not typically that of a school epidemic, and it did not cease with the Christmas holidays. Anti-toxin is offered free to all who have been in close contact with cases of diphtheria. The satisfactory results of this policy, which I have remarked upon in previous years, have continued to show themselves. Out of over 80 'contacts' who received injections, only two developed the disease, and both of these were already ailing before they were treated."

Wivenhoe. The Medical Officer of Health makes no special reference to the outbreak here which affected 1¼ per cent. of the whole population. He remarks that "he made a careful search for the original source of infection without any satisfactory result. I fear that in many cases the infection has been communicated owing to the lack of precaution in intercourse between diphtheria patients and their neighbours."

In another section he says, "Cases of infectious diseases are sent to the nearest isolation hospital, when necessary, there being no accommodation in the district." His report, however, does not show that a single case was removed during the year.

TABLE XXI.

Diphtheria and Membranous Croup.

DISTRICTS.	No. of cases notified	No. of deaths	No. of cases removed to Hospital.	Cases per 1,000 population	Deaths per 100 cases.	Percentage of cases removed to hospital.
Urban Districts.						
Barking	41	2	24	1·[illegible]	[illegible]·9	58·5
Braintree	3	2	3	·[illegible]	66·6	100
Brentwood	1	0	1	·15	0	100
Brightlingsea	0	0	0	0	0	0
Buckhurst Hill	3	0	2	·6	0	66·6
Burnham	0	0	0	1·9	0	0
Chelmsford	17	2	15	·9·5	11·7	88·2
Chingford	5	0	1	·[illegible]	0	20
Clacton	15	1	15	1·6	6·6	100
Colchester	[illegible]2	2	2[illegible]	·[illegible]5	6·2	87·5
East Ham	1[illegible]2	1[illegible]	11[illegible]	1·[illegible]	9·1	80·9
Epping	14	0	14	3·5	0	100
Frinton-on-Sea	0	0	0	0	0	0
Grays	19	2	11	1·[illegible]	1[illegible]·5	5[illegible]·8
Halstead	0	0	0	0	0	0
Harwich	13	1	11	1·0	7·7	84·6
Ilford	68	5	[illegible]5	·9	[illegible]·4	8[illegible]·8
Leigh-on-Sea	1	0	0	·15	0	0
Leyton	167	22	10[illegible]	1·[illegible]	13·[illegible]	[illegible]1·6
Loughton	2	0	1	·4	[illegible]	[illegible]
Maldon	[illegible]3	[illegible]	2[illegible]	[illegible]·7	[illegible]·6[illegible]	8[illegible]·[illegible]
Romford	[illegible]	0	[illegible]	·17	[illegible]	66·6
Saffron Walden	[illegible]	1	[illegible]	[illegible]	[illegible]	100
Shoeburyness	10	0	[illegible]	2·0	[illegible]	[illegible]
Southend-on-Sea	47	3	[illegible]1	·7[illegible]	[illegible]·4	87·2
Waltham Holy Cross	[illegible]	0	[illegible]	[illegible]	0	100
Walthamstow	138	15	111	1·1	10·8	80·4
Walton-on-the-Naze	3	0	0	1·15	0	0
Wanstead	17	1	7	1·4	5·9	41·1
Witham	4	0	0	1·2	0	0
Wivenhoe	30	[illegible]	0	12·5	10	0
Woodford	6	0	[illegible]	·33	0	50
Total	847	75	603	1·09	8·8	71·3
Rural Districts.						
Belchamp	[illegible]	0	0	·0	0	0
Billericay	7	0	0	·4	0	0
Braintree	[illegible]	[illegible]	19	1·[illegible]	13·3	6[illegible]·3
Bumpstead	1	0	0	·4	0	0
Chelmsford	24	0	13	1·[illegible]	0	54·1
Dunmow	[illegible]	0	[illegible]	·[illegible]	0	100
Epping	27	1	[illegible]	2·0	3·7	74·0
Halstead, No. 1	0	[illegible]	0	0	0	0
Halstead, No. 2	0	0	0	0	0	0
Lexden and Winstree	16	[illegible]	0	·8	0	0
Maldon	15	0	[illegible]	·[illegible]3	0	[illegible]3
Ongar	[illegible]	0	[illegible]	[illegible]	[illegible]	0
Orsett	[illegible]2	1	[illegible]	1·[illegible]	[illegible]·1	[illegible]0·6
Rochford	16	[illegible]	10	·[illegible]	1[illegible]·8	[illegible]2·5
Romford	27	[illegible]	11	1·1	11·[illegible]	[illegible]·7
Saffron Walden	1	0	1	·0[illegible]	[illegible]	1[illegible]0
Stansted	[illegible]	0	[illegible]	0	[illegible]	0
Tendring	[illegible]	1	0	·[illegible]7	10·[illegible]	0
Total	[illegible]7	13	11[illegible]	·81	6·0	51·1

Braintree (R.) Referring to an outbreak in this district the Medical Officer of Health says :—

"The first case of diphtheria occurred on October 7th and the doctor was not sent for in that case until the patient was in extremis. Between October 7th and December 31st there were 17 cases in Terling and Hatfield Peverel, 14 of which were in Terling. Everything was done to stop the outbreak and to trace the source of infection, and in trying to effect the former and ascertain the latter I had most valuable and willing aid of Dr. E. C. Gimson. Probably the first child got the disease from another child who had had a sore throat and attended a show or school treat at the time, although a swab taken from the latter's throat subsequently gave a negative result. All the cases with the exception of two (one of whom was the boy who died before he could be removed) were removed to hospital. I feel sure that it was due in a great measure to the fact of there having had anti-toxin injected at the very outset, before removal to hospital that prevented a larger number of fatal results. There were 11 cases of diphtheria in the Coggeshall district."

Epping (R.) The disease chiefly occurred at Roydon, North Weald and Theydon Bois. The two former villages are not sewered. Theydon Bois is a rendezvous for 'trippers,' and they often introduce infection. Printed circulars have been sent to every medical man practicing in the district, stating that anti-toxic serum, either for curative or for prophylactic purposes, required for the poor inhabitants of the district, can be had free of charge upon application. Only one death occurred amongst the 27 notified cases, and this low mortality the Medical Officer of Health attributed to the use of anti-toxin.

Orsett. The Medical Officer of Health makes no reference to the cases here beyond remarking that 29 out of the 32 were removed to hospital. In his Table he only records one death from diphtheria but in the body of the report he says "32 cases; two deaths."

TYPHOID FEVER.

The number of cases of this eminently preventable disease notified each year continues to decrease, but the proportion has now fallen so low that the rate of decrease of previous years cannot be expected to continue.

Many years ago I pointed out that this disease, was excessively prevalent in the district bordering the estuaries of rivers and especially that of the Thames. Shortly afterwards the connection between polluted shell-fish and typhoid fever was definitely established, and attention began to be given to the sources from which such shell-fish were taken. Polluted layings were abandoned, and attempts made to reduce the amount of pollution, with the result that the number of cases of this disease began rapidly to decline. This decline was by no means limited to the towns and villages on the estuaries, but affected all parts of the County. This was only what could be expected as shell-fish collected from the fore-shores were not only consumed locally but sent to various markets and widely disseminated. The Fishmongers' Company took an especial interest in this subject and it is no doubt due to their action that such extraordinary results have been so rapidly achieved. The enormous decrease in the prevalence of typhoid fever in this County is one of the greatest achievements of modern sanitation, and the County Council has played its part with the greatest credit. It was only when the statistics of all the various

districts in the County were compared that the excessive incidence in particular localities could be discovered, and it became possible to ascertain what conditions they had in common. When this was ascertained the rest was easy. Typhoid fever and polluted foreshores were in some way related. Where most shell-fish was collected and consumed locally there the disease was most prevalent. Preventing such pollution or the cessation of shell-fish collection was therefore obviously the remedy. Everything possible has not yet been done as a glance at Table XXII. will testify. In the urban districts the number of cases per 1,000 population only averaged 0·15, yet at Brightlingsea it was ·39, Harwich ·7, Leigh ·4, Shoeburyness ·4, Walton-on-Naze 1·0 and Witham 1·7. It can scarcely be merely accidental that five out of these districts are on the coast or near the mouths of estuaries, and the Witham cases are easily explained, as they were due to an outbreak in a private asylum.

It must not be assumed that typhoid fever is caused by polluted shell-fish only, but it may be accepted as proved that it only occurs where some article of food or drink ingested has been contaminated with infected excremental matter. Persons who have suffered from this disease may remain infected for long periods, possibly throughout the remainder of life, and though themselves, apparently, in perfect health, their excreta may contain innumerable typhoid bacilli, and these, if carried by flies or by any other means to food or drinks, may give rise to outbreaks of disease. It is the presence in our midst of these "carrier" cases which will render it difficult to entirely eradicate the disease, but there is no reason to doubt that it will ultimately disappear entirely.

The following Table shews the continuous decline in the typhoid case-rate and death-rate in the Thames area and in the remainder of the County, and as I remarked in 1909 it is one of the most interesting and instructive Tables ever issued in these Annual Reports.

TABLE XXII.

TYPHOID FEVER CASE-RATE AND DEATH-RATE IN THE THAMES AREA AND IN THE REMAINDER OF THE COUNTY.

Year	Case-rates per 1,000 population		Death rates per 1,000 population.	
	Thames Area	Rest of County.	Thames Area	Rest of County.
1891—1900	1·9	·83	·28	·12
1901	1·9	·60	·26	·10
1902	2·3	·72	·24	·12
1903	1·2	·47	·20	·08
1904	·7	·41	·12	·07
1905	·63	·35	·11	·06
1906	·51	·32	·08	·06
1907	·6	·20	·05	·023
1908	·32	·22	·041	·043
1909	·15	·15	·033	·020
1910	125	·135	·0125	·016

The death-rate from typhoid fever in England and Wales was ·05 or three to four times higher than the rate for this County. This is exceedingly satisfactory but as I have pointed out above, the rate admits of still further reduction.

In the following reports the Medical Officers of Health discuss the causes of the cases which occurred in their districts :—

East Ham. The Medical Officer of Health says—"In October seven cases were notified, and in four of them a history of the patient having eaten shell-fish recently was obtained. Two other cases were of brothers who had been drinking impure water."

Grays. "Typhoid fever is rapidly becoming an extinct disease in this district, both the notified cases having been imported." The third case included in the Table was notified as "continued" fever.

Harwich. Although nine cases were notified here no particulars concerning them are given in the report. The Harwich sewage is discharged into the sea, untreated, at ebb tide.

Ilford. "The total number of these cases continues very low, and is a striking result of the beneficial action of Public Health Measures throughout the country. The increased attention paid to the collection, storage and cleansing of shell-fish, to mention one amongst many other items, has had its effect in diminished prevalence and death-rate from this disease."

Leyton. "No very definite evidence was obtainable as to the origin of the disease. No suspicion attached to milk or drinking water, but in one instance it was attributed to eating mussels, in three to the consumption of water-cress, and in two to drain emanations. One case was that of a boy ten years old who was pushed into a pond and swallowed some of the water, possibly contaminated by sewage."

Southend. "It is interesting to observe that the infection of one of the two cases of typhoid fever recorded this year was due to the eating of uncooked cockles from that portion of the foreshore of the Thames estuary which, being situated near the extreme eastern boundary of the Borough, is not the property of the Corporation, and hence is not included in the area under the supervision of the Shellfish Company.

The benefit to the public health which has resulted from the energetic steps taken by the Health Committee in recent years to prevent the collection and sale before purification of shellfish taken from unprotected beds is not confined to the Borough ; in former years many cases of typhoid fever which occurred in some of the London Boroughs and adjacent urban districts have been attributed by the respective Medical Officers of Health to the eating of shellfish either gathered by the patients themselves when on a visit to the neighbourhood, or sent to them by their friends, and it is consequently most satisfactory to be able to report that during the last two years no complaint of this nature has been received. Though it is admitted that the practical disappearance of typhoid fever from the Borough during the last two years may not be entirely due to the leasing of the Corporation foreshore at the end of 1908, it is claimed that this measure is at least one of the causes of the diminution, and that consequently the Health Committee were abundantly justified in their action.

As was mentioned in last year's Report, with increased knowledge on the part of the public as to the danger of consuming shellfish gathered from unprotected beds, and with the greater attention now paid by shellfish merchants to the necessity of purifying before sale all oysters, &c., obtained from doubtful sources, one is justified in the hope that in the future cases of typhoid fever will only exceptionally occur, and that deaths from the disease will be correspondingly rare. The Council has every reason to be proud of the unrivalled position which the Borough now occupies as regards its freedom from typhoid fever, and may justly take to itself credit for being one of the first Sanitary Authorities to succeed in practically stamping out the disease within its area."

Some 10 years ago Southend was considered to be a veritable hotbed for Typhoid Fever, now it occupies the proud position of having a smaller incidence of this disease than any other watering place. It is a great relief to feel that the multitudes which flock to this most popular seaside resort, can do so without the slightest risk of becoming typhoid infected.

Walthamstow. "There can be no doubt there was no common origin in the great majority of cases and drinking water has played a negligible part" "Excluding the contacts and those diagnosed differently subsequent to notification, eating cockles and mussels may account for one and four cases respectively. One of the four who ate uncooked mussels died."

Witham. "Five of the cases of enteric fever were directly traceable to the first case, which occurred at 'The Retreat,' a private asylum for the insane. The actual cause has not been discovered, but it was thought probable that it may have been through a 'carrier' case."

Tendring (R). Six cases occurred in this district. Two only are referred to. Dr. Cook says "The two cases of enteric fever at St. Osyth were in the same house, the first was caused by eating shell fish and the other by contact."

Dr. Dickin, Medical Officer of Health for Brightlingsea, refers at length to the relationship between oysters and typhoid fever, and as his report contains a good deal of information of general interest I am inserting this portion *in extenso* :—

"Native, American and Spanish (or Portuguese) oysters are cultivated in large quantities in Brightlingsea creek and St. Osyth's channel. It is estimated that about two million oysters were sold from the Brightlingsea beds during the year. Only a small proportion of these were consumed in Brightlingsea, though Brightlingsea people, in proportion to their numbers, do consume a large number.

In my report for 1909, the subject of oysters and disease was discussed. It had been alleged that Spanish oysters from Brightlingsea were the cause of one case of typhoid fever, and one case of diarrhœa beyond the district. The Fishmongers' Company investigated the matter, and by the end of that year samples of Spanish and American oysters, and mud from the beds from which the other oysters came, had been examined bacteriologically. The Spanish oysters were reported to contain the bacillus coli communis. The American oysters and the mud were reported as "clean." Further samples of oysters and mud were sent by your Inspector for examination at the request of the Fishmongers' Company. No information has been received as to

the result of such examination. Dr. Klein and the Secretary of the Company visited Brightlingsea to inspect in May. I was away from home at the time, and notice of the intended visit was so short that information of it reached me after the date fixed. An inquiry as to houses not connected to the sewerage system from Dr. Klein, received through the Fishmongers' Company, was the only communication received. What was inspected, and with what result, has not been communicated to the Council nor its officers. Consequently the result can only be a matter of inference. As nothing was done by the Fishmongers' Company, the inference is that the result of the inspection was favourable to Brightlingsea, and that no action was needed. Although the Fishmongers' Company have no direct control over oyster beds, their power to prohibit the sale in London of any oysters condemned by them gives them indirectly very considerable control. Brightlingsea oysters are allowed to be sold in London, and oysters from polluted beds are allowed to be re-laid here to purify before sale, by sanction of the Fishmongers' Company.

This year two cases of typhoid fever have occurred, in which oysters have been suggested as a cause. These cases have already been described. There are several points to be discussed before any decision can be arrived at.

1. The time elapsing between eating the oysters and the appearance of the first symptoms being much longer than the normal incubation period, and in the second much shorter, rather negatives oysters as a cause. At the same there is always a possibility that a mistake in the dates may have been made.

2. The first patient and his companion had been in the habit of eating oysters from the same source for several months without ill effect.

About the time the second patient had his oysters some 200 of the same batch were eaten at a party, mostly young people, who have not suffered.

3. It should be remembered that oysters are not hermetically sealed when out of the water ; and when the shells open, there is opportunity for dirt to enter.

In the first case the oysters had to travel by road on an open barrow, and were exposed for sale where wheeled conveyance were frequently passing. The liability to contamination by dust is greater in summer when the roads are dry, and it was in July that the supposed cause was eaten. In the second case there seems no doubt that the oysters had no opportunity of becoming infected after leaving the beds.

4. In the first case the patient had been living in a place of which the sanitation was not good. In the second case rats are known to be numerous in the neighbourhood of the house, and that there has been trouble in keeping them from the house. Rats are known to be carriers of typhoid fever.

5. The oysters in both cases were Spanish (or Portuguese). In 1909, the oysters alleged to have caused a case of typhoid fever and one of diarrhœa were Spanish. [I have known Spanish oysters to cause diarrhœa in some people, subject to dyspepsia, while other oysters do not affect them. It does not follow that this diarrhœa is due to bacteria contained in the Spanish oyster, since I have known diarrhœa of the same type to follow the eating of these oysters fried. As the temperature used in frying is as high as 400 Fahrenheit any bacteria in the oyster would be killed. This diarrhœa is, I believe, due to Spanish oyster not being so digestible as the other varieties.]

6. The oysters in both cases were supplied by the same oyster merchant, who sold from his beds between 400,000 and 500,000 oysters during the year. These oysters go to various parts of the country, and no case of typhoid fever, other than the two in question, has been alleged to be due to them or other Brightlingsea oysters. If any case had been due to them the fact would be made known, as "have any oysters been eaten" is one of the first questions asked about a typhoid case.

7. The disposal of sewage has been described, and sewage pollution is out of the question. If the beds were polluted by sewage, it would be on an extensive scale, and there would be dozens of cases instead of two, and they would follow the eating of other oysters as well as the Spanish.

8. If the oysters are to be accepted as the cause, and to some the mere fact that oysters had been eaten would be proof positive, some other explanation of the pollution is required. It is a peculiar fact that it is always the Spanish oyster that is implicated, whether as causing disease or containing bacteria indicating pollution. It has not yet been proved that polluted Spanish oysters will free themselves from bacteria as do other kinds, and certainly there are strong reasons for believing that they do not. It has happened more than once that Spanish oysters are found to contain bacteria indicative of sewage pollution, when the water over them, the mud under them, and other varieties of oysters alongside of them have been found free from these bacteria. Spanish oysters are imported and laid in the beds here to fatten. Assuming that they do retain bacteria, and that they were polluted in their native home, they would continue to be polluted when placed in pure surroundings; but if they were grown in impure conditions, it would be reasonable to expect that the majority of them, if not all, would be infected, and there would be large numbers of cases of typhoid arising from their consumption, which is not the case. There is a way in which a few oysters out of a bed might be contaminated. After the big oyster scare, following the Emsworth outbreak, much activity was evinced by the Fishmongers' Company. Brighlingsea received attention as well as other places. Dr. Klein was bacteriologist to the Company, and as a result of his investigations, and those of the Company's officials, Brightlingsea oyster beds were pronounced to be pure. Further, the condition of the beds were such that it was recommended (by Dr. Klein I am informed) that polluted oysters from condemned beds should be sent to Brightlingsea to be relaid, there purified and made fit for consumption. Such oysters have been relaid in Brightlingsea beds and no complaint of their causing disease when eaten has been made. Those oysters must bring bacteria with them; those in the interior of the oyster can be left out of account, but the outside of the shell must carry a large number. These bacteria might be carried to other oysters. If these oysters will rid themselves of the bacteria as Natives and American oysters do, there is no harm done, but if they are retained by the Spanish oyster, and it has not yet been proved that it will purify itself as the others do, then we have a possible explanation of a few oysters only out of a very large number being infected. The only oysters which could be infected in this way would be those lying near the re-laid oysters. The objection may be raised to this explanation that it is nearly all supposition. This is quite true, but where single cases of typhoid fever are concerned, supposition plays a very important part in assigning the cause.

It may be said that it is absurd to differentiate so between English, American and Spanish oysters; that an oyster is an oyster whatever its place of origin, and that therefore a bacteriological fact applying to one applies to the others. Such argument is hardly sound. There is more anatomical and physiological difference between a Spanish oyster and a Native or American than there is between a polar bear and a donkey. No one would venture to say that a bacteriological fact applying to one of the latter must apply to the other.

When all is said it is not possible to state with any certainty what was the cause of the typhoid fever in these two cases. Possibly it was the oysters; possibly it was the sanitary conditions in the first case, or the rats in the second case; possibly it was some other cause undiscovered.

As to the relaid oysters from polluted beds, no definite cause of complaint can be made against them, yet they do represent a possible source of danger. As regards Spanish oysters, more information as to their bacteriology is required. A series of experiments on them would be most valuable. This would entail a heavy expense, which, as it is not a purely local question, should be borne by some central body rather than by the district."

Table XXIII. shews the incidence of typhoid fever and puerperal fever in every district in the county. An increasing number of typhoid patients is being removed to hospital. Such removal is desirable whenever it can be effected without danger to the patient, but it should always be remembered that, save in the very early stages, removal is not without danger. This is referred to in one report, when death occurred soon after such removal.

PUERPERAL FEVER.

The decrease in the prevalence of this disease which has followed the Administration of the Midwives Act in this County has not been very marked. There is very little doubt that only a small proportion of the cases occur in the practises of midwives. Were not this the case some Medical Officers would direct attention to the fact, whereas very few mention the subject at all. The few references found are summarised below. I wish Medical Officers would make a note of the cases attended in the first instances by midwives as I could then ascertain the proportions amongst those so attended and compare with the proportion amongst those attended by Medical men.

The average number of cases notified for the seven years before and since the Midwives Act came in force are as under:—

		Average number of cases.		Per 1,000 population.
1896—1902	...	45	...	·06
1903—1909	...	45	..	·05
1910—	...	38	...	.037

In proportion to the population there has been a slight decline in the case-rate, but the variations from year to year are very great. The deaths, etc., during the same period were—

		Average in Urban Districts.		Average in Rural Districts.		Per 1,000 population.
1896—1902	...	16	...	5	...	·027
1903—1909	...	17	...	4·4	...	·023
1910—Deaths	...	14	...	3	Death-rate	·017

TABLE XXIII.

Typhoid, Continued, and Puerperal Fevers.

DISTRICTS.	Typhoid and Continued Fevers.						Puerperal Fever.	
	No. of cases notified.	No. of deaths.	No. of cases removed to hospital.	Cases per 1,000 population.	Deaths per 100 cases.	Percentage of cases removed to hospital.	No. of cases notified	No. of deaths.
Urban Districts.								
Barking	7	1	6	·23	14·3	85·7	2	0
Braintree	0	0	0	0	0	0	0	0
Brentwood	2	0	0	·3	0	0	0	0
Brightlingsea	2	0	0	·39	0	0	0	0
Buckhurst Hill	1	1	1	·2	100·	100·	0	0
Burnham	0	0	0	0	0	0	0	0
Chelmsford	0	0	0	0	0	0	2	0
Chingford	0	0	0	0	0	0	0	0
Clacton	0	0	0	0	0	0	3	1
Colchester	2	0	2	·04	0	100·	4	2
East Ham	19	5	16	·14	26·3	84·2	6	4
Epping	1	0	1	·22	0	100·	0	0
Frinton-on-Sea	0	0	0	0	0	0	0	0
Grays	3	0	2	·19	0	66·6	0	0
Halstead	0	0	0	0	0	0	0	0
Harwich	9	0	9	·7	0	100·	1	1
Ilford	16	1	8	·2	6·2	50·	1	0
Leigh-on-Sea	3	0	0	·40	0	0	0	0
Leyton	9	2	8	·07	22·2	88·8	7	3
Loughton	1	0	1	·2	0	100·	0	0
Maldon	1	0	0	·17	0	0	0	0
Romford	2	0	0	·11	0	0	0	0
Saffron Walden	0	0	0	0	0	0	0	0
Shoeburyness	2	0	0	·40	0	0	0	0
Southend-on-Sea	2	0	1	·03	0	50·	2	1
Waltham Holy Cross	0	0	0	0	0	0	0	0
Walthamstow	26	3	19	·21	11·5	73·	3	1
Walton-on-the-Naze	2	0	0	1·	0	0	0	0
Wanstead	1	0	0	·08	0	0	0	0
Witham	6	0	0	1·7	0	0	0	0
Wivenhoe	0	0	0	0	0	0	0	0
Woodford	1	0	1	·05	0	100·	2	1
Total	118	13	75	·15	11·0	63·5	33	14
Rural Districts.								
Belchamp	0	0	0	0	0	0	0	0
Billericay	2	0	0	·1	0	0	1	1
Braintree	1	0	1	·05	0	100·	0	0
Bumpstead	1	0	0	·4	0	0	0	0
Chelmsford	1	1	0	·04	100·	0	0	0
Dunmow	3	0	3	·19	0	100·	0	0
Epping	1	1	1	·06	100·	100·	0	0
Halstead, No. 1	0	0	0	0	0	0	0	0
Halstead, No. 2	0	0	0	0	0	0	0	0
Lexden & Winstree	0	0	0	0	0	0	0	0
Maldon	0	0	0	0	0	0	1	1
Ongar	0	0	0	0	0	0	1	0
Orsett	0	0	0	0	0	0	0	0
Rochford	3	1	3	·17	33·3	100·	1	1
Romford	3	0	3	·12	0	100·	0	0
Saffron Walden	0	0	0	0	0	0	0	0
Stansted	0	0	0	0	0	0	0	0
Tendring	6	0	1	·27	0	16·6	1	0
Total	21	3	12	·08	14·3	57·1	5	3

The smallest number of deaths registered was 16, in 1902-1904, and the highest number 29, in 1899 and 1907.

East Ham. "This disease is not nearly so prevalent as it used to be since nurses and midwives have been taught antiseptic methods of treatment."

Leyton. The Medical Officer of Health thinks some cases escape notification. "A medical man in attendance on a lying-in-woman is not anxious to notify every slight indication of sepsis, evidenced by a rise of temperature, as puerperal fever, many only notify the case when the symptoms are beyond doubt. I believe this to be the universal rule. It follows that any medical man who notified every rise of temperature in a lying-in-woman as puerperal fever would obtain an unenviable reputation; and his practise would suffer in proportion."

Southend. Of the two cases which occurred here, one was attended by a midwife, but there is no allegation of blame.

Walthamstow. Remarking upon the small number of cases which had occurred the Medical Officer of Health says—"This may in part be attributed to the work undertaken by the Essex County Nursing Home, the maternity clubs associated with the Churches, and to the effective supervision exercised by the County Authority in the Administration of the Midwives Act of 1902."

PLAGUE.

Towards the end of the year, several cases of this disease having occurred in Suffolk, just over the Essex border, I caused the subjoined circular to be issued, with the approval of the County Public Health and Housing Committee :—

"THE PLAGUE.

An Immediate War on Rats Suggested.

Preserve their Natural Enemies.

In the adjoining county of Suffolk, a few cases of the Plague have occurred, and the rat hunts which have been inaugurated will probably drive some of the infected vermin into Essex. Human beings may then be attacked. This should be prevented if possible, and at any cost, since Plague is the most dangerous of all known infectious diseases.

While there may be some cause for anxiety, there is, at present, no cause for alarm, since in recent years our knowledge of the cause of the disease and of its mode of spread has greatly increased, and the sanitary condition of the county and the efficiency of the sanitary administration are far better than at any previous period.

The greatest epidemic in history occurred in the year 543 A.D., and was due to Plague. It spread over the whole of the then known world, and is supposed to have caused over one hundred million deaths. Certain parts of the British Isles were practically depopulated. In 1375 a similar epidemic occurred, which is said to have carried off 25 millions of Europeans. The last outbreak in England was in 1665-6. About 70,000 deaths occurred in London, Colchester recorded 4,731 deaths, and Braintree 665. About one-third of the population in many towns was swept away, and in East Anglia about two-thirds of the clergy fell at the post of duty.

Attacks Animals.

The disease differs from all others of an infectious character in being able to attack many varieties of animals. In fact, most epidemics of Plague have been preceded by an extraordinary mortality among animals, especially rats. It can affect rats, mice, ferrets, fowls, rabbits, hares, pigs, and probably other animals, but rats seem to be most susceptible. When Plague occurred in Hong Kong in 1894, bacteriologists studied the disease, and ultimately discovered that it was caused by a bacillus which can fairly easily be recognised in any person or animal infected. A most interesting series of experiments made to ascertain how the disease was spread resulted in the discovery that the fleas on infected rats were themselves infected, that upon the death of a rat the fleas left the dead body and attached themselves to other rats and other animals, and that these were then attacked by the disease.

These discoveries lead many to think that it would be a much easier matter to prevent epidemics in future, and when Plague was introduced in Bombay in 1896, it was said that it would easily be controlled. Unfortunately, this did not prove to be the case, as the disease still prevails in India, and has caused as many as a million deaths in a single year.

There are three types of the disease, the bubonic, the pulmonary, and the septicæmic, the last being a form of blood-poisoning. Epidemics may be so mild in type that not more than one per cent. of those attacked die, or they may be so severe that 90 per cent. of the cases prove fatal. Among Europeans in the East from 30 to 60 per cent. of those attacked succumb. The cause of this variation in virulence is not known, nor do we know, in all cases, how it is spread from person to person. Fleas account for most of the cases, but not for all, and man sometimes appears to be infected and not animals, but, as before stated, rats are usually affected before man.

'Fleas are Fleas.'

Fortunately the rats now so common in this country are of a different species from those which infected houses, farms, etc., at the time of the last great Plague.

Possibly the disease so diminished their number that when the present species were imported from Norway they were able to increase and multiply and almost exterminate their predecessors, who came from the East. The Eastern, or black rat, which has large ears, and whose tail is longer than its body, was infested by a flea which would attach itself to human beings, while the brown, or Norwegian rat, which has smaller ears and a tail shorter than the body, is infested by a flea which does not seem to care for human blood. This fact alone renders it extremely improbable that we shall be as prone to attack as our forefathers, but we must not lay too much stress on this; fleas are fleas, and many people seem to attract them from any kind of animal with which they come in contact.

The poor, ill-fed, and unclean portion of a population are always the first to suffer, and especially if they live much in contact with animals, but when the disease assumes epidemic proportions, the rich, the well-nourished, and the clean may be attacked.

To Prevent Invasion.

To prevent Essex being invaded attention should be at once directed towards the extermination of rats, by means of ferrets, dogs, the gun, etc., so long as the rats are

not infected When they become infected I am inclined to think virus or poison the safer and it will certainly be better to organise campaigns now than to wait until the rats became stricken with the disease. The dead animals should not be touched by the hands, or the fleas may emigrate. The best plan is to dip them in petroleum and afterwards to cremate. Owls, kestrels, and other birds which destroy rats should not be killed. Next, attention should be given to the conditions which attract rats, and these conditions should be remedied. House refuse should be kept in closed receptacles; rat-infested houses should be thoroughly overhauled and rendered rat-proof. Fowls, rabbits, etc., should not be kept too near houses, and they should be kept in a cleanly condition. Houses should be kept as clean as possible, and if all could be persuaded to keep their bodies and underclothing clean, the probabilities of infection would be greatly decreased. Medical men should be on the look-out for suspicious cases, and any such should be reported to the Medical Officer of Health, with the view to a bacteriological examination being promptly made, and every sanitary authority should be prepared to thoroughly isolate, at a moment's notice, any case which many occur."

Fortunately no case of the disease occurred in the County, and when at a later date the Local Government Board caused a large number of rats collected in the County to be examined, not a single one was found to be infected. One infected hare was discovered.

The subject has been so fully dealt with in a recent report by the Board that further reference to it here is superfluous.

CEREBRO-SPINAL FEVER.

Two certain cases and a few doubtful cases occurred during the year. I saw all those which came to my knowledge. The positive cases are referred to in a special report, a summary of which is included in this report.

MEASLES AND OTHER DISEASES NOT GENERALLY NOTIFIABLE.

These call for little remark. The numbers of deaths from each are given in the tables in an earlier portion of the report. The Local Government Board has recently issued a memorandum which every Medical Officer of Health should carefully study. It is somewhat of a disgrace to the Sanitary Administration of this County that such enormous sums of money and so much time should be spent in combatting scarlet fever and diphtheria, whilst the ravages of measles continue absolutely unchecked. The Board does not appear to think that it is necessary to make measles a notifiable disease, but that all the necessary information could be obtained from schoolmasters, attendance officers, etc. If a special inspector, preferably a woman, could then visit infected neighbourhoods, advise parents, and see, as far as possible, that the advice was acted upon, the spread of the disease might to a large extent be prevented, and the more intelligent care taken of the children attacked would reduce the mortality. General isolation in hospitals appears to be out of the range of practicability, at least at present, but isolation of the very earliest cases, [illegible] overcrowded houses might, with advantage, be adopted.

PHTHISIS.

The year 1910 will long be remembered since it saw the inception of the idea for forming a memorial to the late King Edward VII., which is to take the form of an Association for the 'Conquest of Consumption' in the County.

Its inception is undoubtedly indirectly due to the efforts of Dr. Lyster, Great Baddow. This gentleman has treated a comparatively large number of cases of phthisis in canvas shelters of inexpensive construction, and Mrs. Boyd gave a sum of money for the purchase of a number of shelters and their erection in a field adjoining an old farmhouse, which could be utilised as an administrative block This was done and a formal opening decided upon. Several gentlemen interested in the matter thought it a favourable opportunity for commencing a county movement, and it was arranged to hold a meeting in the Shire Hall, Chelmsford, after the formal opening of the 'Boyd Memorial Home.' The 'Home' was opened by the Earl of Warwick, Lord Lieutenant of the County, and at the meeting afterwards it was moved by the High Sheriff of Essex, Mr. Ralph Bury, D.L., seconded by Mr. G. A. Paul, of the West Ham Board of Guardians, and carried unanimously :—

1. That this meeting, having heard Dr. Lyster's statements with reference to the isolation and treatment of consumptive patients, and having seen the Boyd Memorial Shelters at Little Baddow, is of opinion that the system is one which might with advantage be adopted throughout the county, since it is not only efficient, but also economical.

2. That the Sanitary Authorities throughout the county be urged (1) to provide shelters for the use of consumptives in their districts; (2) to provide a central establishment on the lines of that at Little Baddow for the training of patients and for the use of those who cannot avail themselves of "home" treatment; and (3) a number of shelters for lending to patients for erection upon ground at or near their own homes, where they could be attended by their own medical men.

3. That a County Association be formed to encourage this movement, to supervise it, and render assistance wherever possible.

A large Committee was formed to carry out resolution (3), and when it met certain members pointed out that there were other ways of combatting tuberculosis besides the provision of shelters, and finally it was decided that it would be better to found a Memorial to the late King and to leave open for further consideration the lines upon which the crusade should advance.

Early in the present year a county meeting was convened by Lord Warwick, at which his lordship proposed that such a County Memorial be formed. This was seconded by the High Sheriff and carried unanimously. I then proposed that the Association should have for its objects—

(1) Encouraging local authorities to provide shelters for suitable cases ;

(2) Providing, if funds permit, one or more central institutions in the County and with the assistance of the local authorities, for the education and treatment of phthisical patients ;

(3) Organising a general crusade against the disease throughout the County.

This also was carried, and the Lord-Lieutenant was elected President of the Association, and Mr. Alderman Thompson (Chelmsford), Hon. Secretary, and a Committee appointed.

An appeal is being made to the County for the necessary Funds, and as soon as it is known what amount is likely to be subscribed, work will be commenced. The proposal, in the first instance, for forming an Association simply to provide shelters, was not looked upon with favour by the medical profession generally and it has proved difficult to convince a large number of people that the new Association has abandoned this idea and that this is only one of its many objects.

At Ilford, East Ham and Barking a few cases of phthisis have been taken into the Isolation hospitals for varying periods, and at Barking a tuberculosis exhibition was held which was largely attended and which the Medical Officer of Health thinks was productive of much good.

As the subject is just now attracting a good deal of attention in the County, the following abstracts from the reports of Medical Officers of Health will be read with interest:—

Barking. "A scheme is being considered by the County Committee and has received support from the Romford Guardians, proposes that the Sanitary Authorities provide canvas huts as designed by Dr. Lyster, of Great Baddow, for the treatment of comsumptives in their own gardens: and a scheme was proposed by the Guardians to undertake extensive treatment of patients on these lines at their Workhouse in connection with the subject. The following considerations are worthy of remark:—

"That the Poor Law cases are invariably in such a hopeless condition because the patient by the deterrent influences of the Poor Law has been kept from applying as long as possible, and the appropriate treatment in such cases is rest and warmth until they die. Moreover, since the days of Naaman the Syrian, the public, and specially the least educated section of it, have strongly resisted, passively for the most part, any attempt to get them to co-operate in their own cure; they expect everything to be done by drugs, by the magic influence of the doctor, or with the help of large buildings such as the great hospitals, and a considerable fear of ridicule exists in their minds, and they think that their neighbours would laugh at them if they slept in huts. At the same time, the teaching of the infectivity of phthisis is making many people hard and cruel to the consumptive: they would be willing to drive them out of the community without adequately ministering to their needs. Owners of house property have assured me that they would gladly pay a consumptive to occupy a house belonging to someone else rather than they should occupy a shelter in the garden. When one realizes the stuffy condition of the rooms of the patients friends it would be impossible in cold weather for a man to live in a shelter on intimate terms with his family considering the contrast of their surroundings. Personally I feel that this system has much to recommend it, but that town conditions are very different from country in which the gentle pressure of a popular rich lady might initiate such a scheme with success, whereas this could not be done in towns, so that I could not urge the Council to spend money on it at present. If a society liked to lend patients the shelters and it were discovered that the

scheme was workable and yielded good results, it could be adopted, but I think it should only be undertaken on these terms. The most satisfactory method of introducing it would be for two or three cases to set an example, Recently a highly intelligent young man asked for a hospital ticket for Brompton to enable his sister to go to a sanatorium. As this was not forthcoming, the case seemed to be a suitable one for the Council to undertake. I found that there had been a considerable mortality from this disease in the family. Although there were facilities for doing so the girl's mother flatly refused to continue the treatment when she came home, and I found that two children, who at great expense had been sent last year by a charitable society into the country, had been fetched back by the mother before their stay was complete, entirely from caprice."

"This treatment is capable of yielding good results; it entails on those providing it considerable trouble and expense and willingness to co-operate in the patient's own cure is absolutely necessary for success. At the same time facilites for those who would co-operate are not adequate nor are means for discovering the disease whilst it is curable."

"Allusion has been made in former reports to the desirability of providing a dispensary to undertake the treatment of those consumptives able to get about, in order to prevent the terrible waste of time, and the suffering entailed by their visiting the out-patient departments at the London Hospitals. I am at the present moment investigating a system of treatment by means of tuberculin undertaken by Dr. Camac Wilkinson, at Kennington, which appears to be yielding some good results."

Chelmsford. "I am still strongly of opinion that to deal effectively with pulmonary Tuberculosis this disease should be made notifiable. In the borough the only cases of tuberculosis that are notified are those suffering from pulmonary tuberculosis who are in receipt of parochial relief. It is, without doubt, an infectious disease and officially it should be treated as such, but the Local Government Board have not yet agreed to this. In time I believe without doubt it will be made notifiable. In this instance I believe the County Association would be greatly strengthened if they have officially the number of cases of this disease existing throughout the County especially so in regard to the second proposal, *i.e.*, the establishment of one or more Central Institutions in the County for the education and treatment of patients. This proposal is, in my opinion, the most important one, and one that would have the support of everyone interested in this subject. I have no doubt in my own mind that funds would be quickly forthcoming to further this scheme, especially so in view of the fact that the object is to be a Memorial to our late King. I would like to suggest here the importance of choosing a site for this Institution; how desirable it would be to obtain some site in a bracing locality in close proximity to the sea, for I suppose only early and suitable cases would at first be selected to go to the Central Institution, by that I mean cases that are curable. This Institution under a competent and resident staff would be a great blessing to the early cases. Then, as the movement develops, another Institution of a similar type might be established for those cases more advanced in type and in whom the prospect of cure may perhaps not be possible.

I am sure that it is necessary first to provide for the early and curable cases, then later to provide for the advanced cases. I feel also that the question of the provision of shelters could be left to the Local Authorities themselves to deal with as each authority may think fit. But as regards the establishment of a Central Institution or Sanatorium I should think few, if any, could have any doubt as to the enormous good such an Institution would d . Consideration in this matter could be briefly confined to two questions alone :—

1. For the reception and probable cure of early cases.
2. For the education of those admitted in regard to the disease from which they are suffering. This alone I consider to be a question of the greatest importance, and which, in my opinion, can only be successfully done in an Institution properly and fully equipped and with a properly qualified staff. Personally I have much doubt if this important question of the education of a patient is ever thoroughly accomplished except in Sanatoria, and feeling strongly as I do regarding the importance of this, both for those affected directly and for those in contact, I urge strongly the establishment of Sanatoria rather than the establishment of individual shelters. I have purposely left the question of treatment of the patients themselves as I feel my views regarding treatment might not be in accordance with those who urge the establishment of individual shelters.

East Ham. "The principal predisposing causes of tuberculosis are insufficient and improper food, insanitary houses, personal uncleanliness and poverty. As phthisis causes most deaths during the wage-earning period of life, *i.e.*, between the ages of 25 and 65 years, it is a serious question for the nation, and Public Health Authorities should take concerted action, assisted by the State, to arrest the disease. We have, during the year, taken in some 14 cases for treatment at the Isolation Hospital, but the results were not satisfactory, as most of the cases notified and admitted were in an advanced stage. It is to be hoped that the time is not far distant when general notification will be brought about and then more cases might be treated with some measure of success.

All cases notified are visited, and printed instructions are left giving information concerning the disease and disposal of sputum, etc. Pocket sputum bottles are supplied where the patient is unable to purchase one. Disinfection of the room occupied by a consumptive is carried out when possible, in fact the public are being gradually taught how infectious this disease is, and often write to the Public Health Department for their room and bedding to be disinfected. The introduction of Health Visitors by some Sanitary Authorities and Voluntary Health Societies, together with the "Press," have done good service in educating the public as to the nature of the disease and adoption of methods for prevention of the spread of infection. The advantage of taking these cases into a hospital for open-air treatment is that they are taught the necessity of fresh air and amount of exercise to take, also the best food to combat the disease."

Epping (U.) The Medical Officer of Health says :—"We do not need sanatoria or tuberculin dispensaries here, but seeing that defective housing, with bad environment, are the chief cause of the disease, it lies with the Local Authorities to use all the powers which they now possess, to combat this great source of the evil.

Grays. Referring to the provision of shelters and the provision of sanatoria, the Medical Officer of Health says :—"Of the two schemes under consideration, the aquisition of a central sanatorium would best meet the needs of an urban district such as this. However successful home treatment in shelters may have proved in a rural district, with ample funds at command, many and insurmountable difficulties would arise in applying the system to an urban district composed chiefly of the working classes, not the least of which would be the provision of the necessaries for the prolonged treatment required in cases of consumption. In my opinion, the only satisfactory system would be a central sanatorium for the treatment of early and curable cases, and for Sanitary Authorities to provide accommodation elsewhere for advanced cases found in small and crowded houses."

Halstead. The Medical Officer of Health has recommended the erection of huts in the hospital grounds, but this has not been adopted. He adds: "Until it is possible to isolate every case of phthisis directly it is detected, the disease will never be checked and year by year deaths will occur from this preventable disease."

Leyton. "Out of 84 poor law cases notified, 67 went into the Infirmary. This is no doubt largely due to the policy of the guardians of offering the advantages of institutional treatment in preference to giving out-door relief to phthisical patients. This policy is distinctly advantageous, from a preventive point of view, as it removes the potentially dangerous person from contact with the other members of his family, and enables us to disinfect the rooms and bedding, &c., which have been used by him. It is but seldom that these poor people can, with due regard to the safety of the other inmates, be satisfactorily lodged in their own homes; it being practically impossible for a bedroom, or in many cases even a bed, to be set apart for the exclusive use of the sufferer."

"As to the amount of accommodation in the Infirmary for phthisical patients, room is always made for them. I have never known a patient to be refused admission. Through the courtesy of Dr. Muir, the Medical Superintendent, I am able to supply some facts which I consider to be of interest. Three large wards are devoted to phthisis cases—two to males and one to females—and in addition to these six canvas shelters, each accommodating two patients, have been recently erected in the grounds. These shelters are of the type designed by Dr. Lyster, of Great Baddow."

"Dr. Muir has found the men who live in these shelters complain very much of the cold during the daytime, and in consequence of this a large shelter, to be heated by a stove, is in course of erection, the same to be used as a sort of day room. It is found that almost all the cases admitted into the Infirmary are in a very advanced stage of the disease, and this is more particularly so in the case of the women. For this reason the shelters are not of so much value as they have been found to be at Great Baddow."

"Again, it is found that the administrative difficulties are considerably greater here. The men—and these shelters are exclusively used for men—after having been in the wards and being used to have everything done for them, do not readily assist in the keeping clean of their particular shelter, bed-making, &c., as is the case, I understand, in the country districts."

"There is just now much talk about the provision of these shelters (whose great merit is their cheapness, viz.: initial cost £15, and whose life is said to be some five years) to all phthisical patients for erection in their gardens and back yards, it being claimed for such provision that the necessity for large and costly buildings as sanatoria will be unnecessary, and every consumptive patient will be able to be treated in his own home."

"Certain experiments of this character have been carried out in the country district of Great Baddow with very encouraging results, but personally I am not so sanguine about their use in an urban district like Leyton. I fear that unless a man has had a few months' training in a sanatorium, and has had personal experience of the benefits to be derived from such open-air treatment, he will be little inclined, especially in winter weather, to forego the attractions of a warm fireside, when it is so close at hand, for the discomfort of one of these shelters."

Then, referring to the different agencies to be employed, he says:—

"*Sanatoria.*—The chief use of the sanatorium is its educational effect on the patient. Here he is taught the principles which, if carried out on his return to his home, will both conduce to his cure and to the safety of those who dwell with him."

"The chief objection to sanatoria is their costliness both as to initial outlay and upkeep, but it is practicable to establish sanatoria for consumptives on a more modest, scale than that hitherto adopted."

"*Supply of Shelters for Private Use.*—Dr. Lyster's shelters and their use at the West Ham Infirmary have already been referred to."

"It is only after a short period of training in a sanatorium that, in my opinion the lending out of shelters for use in patients' gardens and back yards, as proposed by the promoters of the Essex County Memorial to King Edward, would be most applicable."

"*Health Visitors.*—The functions of health visitors in the scheme for the eradication of consumption are very important; they consist of visiting the consumptive in his home, giving advice, and seeing that the precautions advised are duly carried out. In the case of those who have left the sanatorium their after-care would be supervised, and any falling away from the paths of hygienic righteousness would be reported and measures taken to, as far as possible, secure a return to those paths. Any suspicious case of illhealth in any other member of the family would be enquired into, and so incipient cases of consumption would be brought to light."

Southend. The Medical Officer of Health has a lengthy report on consumption and apparently the Borough Council and the Rochford Board of Guardians have had a conference. Afterwards a circular letter was sent to every medical practitioner in the borough, asking for information upon certain points. After receiving the replies "the Health Committee informed the Guardians that, having regard to the practically unanimous opinion of the local medical practitioners that patients suffering from phthisis in its incipient stages would not enter a Poor Law Sanatorium, they considered the establishment of such an institution would not achieve the object aimed at, and that in view of the changes which will probably shortly be made in the law relative to the relief of the poor, they were of opinion that the time was not opportune for either the Guardians or the Town Council to provide a tuberculosis

sanatorium. They added that they were of opinion that in the event of cases of phthisis in an incipient stage applying to the Guardians for treatment, it was advisable that efforts should be made to secure their admission into a suitable sanatorium already existing, and that patients in the later stages of the disease should continue to be received into the Poor Law Infirmary."

Referring finally to the County Association, he says:—"Great benefit must necessarily follow from an active crusade against consumption conducted under the auspices of such an association, and the educational value of its work will be immense. It is questionable, however, whether the attempt to enlighten the public and local authorities on the subject which will necessarily be the main task of the association can be considered to be a suitable permanent memorial to the late King, and I am doubtful whether in the long run the ultimate solution of the question will not be postponed by the efforts of a voluntary body endeavouring, owing to the apathy of Sanitary Authorities in the past, to relieve the latter of what is unquestionably one of their duties, viz., the provision of adequate treatment, suitable for all cases of phthisis, and aiming not only at the cure or relief of the individual patient, but also at the prevention of the spread of infection to others."

Walthamstow. After referring to the uselessness of advice or offer of shelters to people who are starving, the Medical Officer of Health refers as follows to the County Association:—

"The movement, so far as I can gather from the Press, has not yet had the financial support that it deserves, although designed as a memorial to our late King.

"It appeals to me that the provision of hospitals and shelters should be the duty of Sanitary Authorities, and to encourage them to undertake that duty, the County Council should contribute under the Isolation Hospital Acts; the funds from voluntary subscriptions being more usefully spent in assisting the families of consumptives while under treatment."

"Once adequate provision was made for the treatment of the disease, sufferers in the early stages would soon apply, particularly as those depending on them would be looked after, and within ten years phthisis would become a rare disease."

Braintree (R). "Where phthisis patients are confined within the narrow limits of small cottage bedrooms, not only does the disease flourish and increase, but the lives of the other inmates of the house are endangered. Costly sanitorium treatment is of course out of the question, but it seems to me that it should be possible for some comprehensive scheme embracing all the Unions in the County to be carried out, the cost to each Union being slight compared with the benefits resulting. Some such scheme is, I think, under consideration, but should that fall through I shall be prepared to submit to the Council some scheme for dealing with cases occurring in the district only. The scheme should of course, apply not only to pauper cases but to all cases where means will not allow of efficient treatment being carried out at home or in a Sanatorium."

Epping (R). "Notification of this disease is confined to Poor Law cases in this district, no system either compulsory or voluntary notification having been adopted, and whereas 11 deaths were attributed to the disease, only two cases were

notified. Some of the fatal cases, however, may have been notified in the previous year under the Public Health (Tuberculosis) Regulations, 1908. In other districts where either compulsory or voluntary notification has been in force, the experience of the working of these systems does not appear to have been altogether satisfactory, and certainly the benefit obtained does not equal that from the notification of other infectious diseases. In respect to all known cases among the less intelligent classes, the houses are visited, and where it seems desirable, printed instructions are distributed, and when deaths occur thorough disinfection is carried out. No hospital accommodation for advanced or earlier cases, either in infirmaries or elsewhere, has been provided, nor has the question of tuberculin dispensaries for the more direct treatment of the disease been discussed. Upon the suggestions of the Chairman, however, it has been decided to provide a few portable open-air shelters, such as have been in use for many years past, to be placed in cottage gardens or other convenient sites, where suitable cases may be isolated and treated. It will be interesting to watch the effect of this method, but it has to be borne in mind that with the great public interest which has of late been awakened in the subject of the eradication of this disease, medical opinion is as yet far from settled as to the best means to be adopted. Some advocate sanatoria treatment, others believe more in dispensaries where treatment with tuberculin can be carried out, while others again look almost exclusively to the general improvement of the sanitary and social conditions of the people. For a general crusade against the disease, it will probably be found that success lies in the adoption of all that is best in each of these methods, and until this is settled, one thing only remains certain, namely, that whatever decision is ultimately arrived at by experts, no kinds of treatment, whether curative or prophylatic, will succeed in eradicating consumption, which leaves out of account the improved environment and better housing of the people."

At the present time there is no public institution in the County for the reception of cases of Consumption, and until the County Association takes some definite steps, or makes some definite pronouncement, nothing is likely to be done by Boards of Guardians or Sanitary Authorities towards providing a Sanatorium, or other means of isolation and treatment.

The County Association is not likely to raise such a sum of money as will pay for the erection of a large institution, or defray more than a small fraction of the cost of its maintenance: hence the utility of the Association will greatly depend upon its powers of organization. It must bring Authorities together and encourage them in every possible way to make use of the large powers they already possess. Sanatoria could be provided, dispensaries established, shelters lent, exhibitions held and lectures organized, and the initial expense of bringing these about defrayed by the County Association. More than this it is scarcely possible to do, but it is exactly the work best worth doing, and which is most urgently needed.

A careful study of the opinions expressed above cannot fail to be useful to every member of the County Association, and I would respectfully urge the Association to decide as early as possible upon the lines of action which it will take, as the present uncertainty is paralysing all the efforts of Medical Officers of Health and is preventing any progress being made.

ISOLATION HOSPITALS.

Upon the whole the County is satisfactorily provided with Isolation Hospitals for the more important infectious diseases. Two or three of the small Urban Districts have not yet provided isolation accommodation but they are being pressed to do so. Three Rural Districts (Ongar, Tendring, Lexden and Winstree) have tents only. The arrangement at Ongar may suffice, as, being near London, cases can be sent to the London Fever Hospital, but the two other Rural Districts are larger and much more populous and, in my opinion, proper hospital accommodation is very desirable. In the Tendring Union there are four small Urban Districts without hospitals, and some combined district or districts should be formed. The County Council has taken great interest in this subject and since the Isolation Hospital Act of 1895 has done much to improve the accommodation provided in the County. In fact prior to the passing of this Act there were very few hospitals in the County and probably not one of a satisfactory character. A number of combined districts has been formed and probably more would have been done in this direction had not the Local Government Board overruled the Council's first and only Order. That the County Council were thoroughly well acquainted with the real needs of the County was proved by Parliament refusing to sanction one of the Board's Provisional Orders, and by the second Order, although passed by Parliament, being subsequently amended and made practically to correspond with the original order of the County Council.

To encourage the provision of satisfactory hospitals, and to encourage efficient administration the County Council makes a grant annually to each hospital, erected from plans approved by the Local Government Board, such grant not exceeding £5 per bed calculated on the basis of 2,000 cubic feet for each bed. For this purpose I keep the hospitals under observation and make a formal inspection each spring. A statement of accounts is submitted as soon as possible after March 31st, and besides considering these I give attention to the following points in recommending the amount of grant to be awarded by the Council :—

(1) The adequacy of the precautions taken to prevent infection being conveyed by inmates to persons outside, with special reference to the nature of the enclosure.

(2) The position and area of the hospital site and the adequacy of the Hospital for the whole of the district served.

(3) The general character and arrangement of the several buildings, the condition of repair, adequacy of lighting, heating, ventilation, drainage and water supply.

(4) The amount of accommodation provided, the air space per bed, and the number of diseases which can be treated at the same time with proper separation of the sexes.

(5) The arrangement and furnishing of the wards and administrative block and the convenience for nursing.

(6) The efficiency of the staff and of the administration generally.

(7) The adequacy of the arrangement for moving patients, for admitting and discharging patients, and for disinfection.

(8) Provision made in the case of fire, and means of communication with the Medical Officer, etc.

When defects have been pointed out and not promptly remedied a grant has been withheld until improvements were made which I regarded as satisfactory.

The following grants have been made for the year 1910.

TABLE XXIV.

HOSPITALS.	No. of Beds.	Grant per Head.	Grant.
		£ s. d.	£ s. d.
Walthamstow	84	5 0 0	420 0 0
Ilford	56	5 0 0	280 0 0
Waltham Joint	42	5 0 0	210 0 0
Romford ,, ...	42	5 0 0	210 0 0
Chelmsford ,, ...	21	5 0 0	105 0 0
Clacton	17	5 0 0	85 0 0
Dunmow	8	5 0 0	40 0 0
Braintree	8	5 0 0	40 0 0
Maldon	10	5 0 0	50 0 0
East Ham	42	5 0 0	210 0 0
Southend	36	4 0 0	144 0 0
Orsett	20	5 0 0	100 0 0
Rochford	12	4 15 0	57 0 0
Halstead	6	4 0 0	24 0 0

Colchester does not apply for a grant although it is possibly entitled to one since the hospital was modernised last year.

Accounts are appended of all the hospitals in the County. With one or two exceptions these are prepared from notes made at my visit. In the exceptions the information is taken from the reports of the Medical Officers of Health.

The chief requirements of the County are :—

(1) A hospital for Brentwood Urban and Billericay Rural Districts, the present one belonging to the Rural District being utterly inadequate.

(2) Hospitals for the Tendring and Lexden and Winstree Rural Districts.

(3) Hospitals for the following Urban Districts :—Burnham, Brightlingsea, Frinton, Leigh-on-Sea, Witham, Walton-on-Naze, and Wivenhoe.

Burnham and Witham may possibly combine with Maldon, Leigh is preparing to provide a hospital, and the remaining Urban Districts should combine with the adjacent Rural Districts.

Some of the existing hospitals admit of improvement, but probably in no instance are the arrangements so unsatisfactory as to justify the exercise of any compulsory powers by the County Council.

DESCRIPTION OF THE ISOLATION ACCOMMODATION IN THE ADMINISTRATIVE COUNTY.

Barking. Population about 32,000.

The isolation hospital is situated at Upney about 1 mile from the centre of the town. The land available is three to four acres in extent, but a portion only is bounded by close wooden fencing. The public water supply is laid on and the drains discharge into the main sewer.

The administrative portion consists of an old farm house. This is used for housing the staff and is very unsatisfactory. The ward blocks are of wood and iron and will accommodate 50 patients, allowing only about 1,000 cubic feet for each bed. Two diseases can be isolated. There is a wash-house and a mortuary. The ambulance and disinfecting apparatus are at the sewage works. The whole place admits of great improvement, but the Medical Officer of Health says: "It seems desirable to postpone further consideration of the extension of the hospital accommodation in order that due regard may be given to the possible development of the district, and to any changes made by legislation in reference to the provision of hospital accommodation by local authorities." A shelter has been erected in the hospital grounds for a phthisis case. The total cost of the hospital for the year ending March 31st, 1911, was £1,853 4s. 5d. The staff appears to be ample. 131 cases were admitted during 1910.

There is apparently no probability of effecting a combination with any adjacent district.

Braintree Joint Hospital.

Serves the Urban and Rural Districts. Population about 24,000.

This is a modern hospital of approved type, situated in Cressing Road, about one mile from the centre of the town. There are 3¾ acres of land, of which 6,123 sq. yards is properly enclosed by oak fencing 6½ feet high.

The administrative block has five rooms. The ward block comprises two wards for eight patients and Berthon huts are also provided. The hospital is connected with the sewers and the public water supply is laid on. There is a wash-house, disinfector, ambulance, etc. Though small the hospital is well equipped and well maintained, and appears to satisfy the reasonable requirements of the district. The cost of maintenance for the year ending March 31st, 1911, was £835 19s. 1d., and 42 patients were admitted.

Brentwood. Population 6,900.

This district possesses no hospital, but has an arrangement for sending patients to the Billericay Hospital, when there is accommodation available. This hospital is of an antiquated type and too small for the two districts. A joint hospital district should be formed and a suitable hospital provided.

Brightlingsea. Population about 4,400.

There is no permanent hospital here, but the Council possesses two marquees, and pays a retaining fee for the use of a piece of land upon which the tents can be erected. There is no disinfecting apparatus. The Medical Officer of Health says: "A permanent hospital furnished and staffed ready to receive patients at any time is extremely expensive, and I have not felt its possible advantages would justify the certain very heavy expenditure in this district."

A combination with Wivenhoe and the southern part of the Tendring Rural District would appear to be desirable, but the suggestion has not met with the favourable consideration of any of the authorities concerned.

Buckhurst Hill. *Vide* Waltham Joint Hospital.

Burnham. Population 3,200.

The Council possesses a cottage, but recently when required for use it was found to be uninhabitable. Some accommodation is required here. A combination with Maldon Rural District has been suggested and is, I believe, under consideration.

Clacton. Population about 9,800.

This favourite watering place has an excellent modern hospital situated at Rush Green, about 1 mile from the town. There are 3½ acres of land, of which 1 acre is properly enclosed. There are two separate ward blocks, with 17 beds. The administrative block has five rooms. There is a wash-house, laundry, mortuary, disinfecting apparatus, and a brougham ambulance. Everything is maintained in excellent order. 29 cases were admitted during the year ending March 31st, 1911, and the total payment for the year was £711.

The premises are connected with the main sewer and the public water supply is laid on. There is telephonic communication with the Town Hall and the Medical Officer's residence.

Chelmsford Joint Hospital.

Population served 40,000.

This is a modern hospital situated in Great Baddow parish just over the borough boundary. It is connected with the public sewers and the public water supply is laid on. There is telephonic communication with the Medical Officer's house and with the houses of the two Medical Officers of Health.

There is a large administrative block and two separate ward blocks. Twenty-one patients can be accommodated. There is a laundry, disinfecting station, ambulance shed with brougham ambulance, and a caretaker's cottage. The whole is well equipped and well managed. The Medical Officer of Health for the Borough wants a typhoid block and an admission and discharge block, but at present I see no necessity for these. The area of the land is 5¾ acres and the whole of this is properly enclosed. Eighty-six cases were treated during the year ending March 31st, 1911, and the total expenditure was £1,759.

CHINGFORD. *Vide* Waltham Joint Hospital.

COLCHESTER. Population about 41,000.

I have not seen this hospital since it was enlarged and improved. Originally it was a small farm house connected with three small wood and iron wards by means of a corridor. It is at Mile End, about three miles from the centre of the town. Later a wood and iron building for 12 beds was added and a wooden building for eight beds. Water was derived from a well a short distance away, and the sewage was treated in a septic tank and coke breeze filter. Severall's Hall, a farm house, was purchased by the Borough to isolate diphtheria contacts and convalescents. In 1909 the Medical Officer of Health reported that the need of more modern and better ward accommodation had been felt throughout the year, and that many of the existing arrangements were unsatisfactory. In last year's report he says: "In June, 1910, the new wards at the hospital were opened and have since been of very great use. One of the wooden buildings has been converted into a discharge block for scarlet fever cases. The new buildings consist of two blocks, the 'Laver' block for scarlet fever, and the 'Shaw' block for isolating suspicious cases or cases of double infection. The former is made up of two large wards, and two small side wards, with ward kitchen, bathroom, and lavatories. The latter consists of four wards with a central kitchen. The wards are in pairs and separated by glass partitions from one another. A verandah outside the wards connects them with one another, the kitchen, and the offices." The corrugated iron building has been renovated and the electric light installed.

EAST HAM. Population about 133,000.

During recent years the hospital has been greatly improved. The total bed accommodation is now as follows:—

Diphtheria Wards ...	20 beds ...	1,000 c. ft. per bed ...	Wood and iron
Enteric ,, ...	20 ,, ...	1,000 ,, ,, ...	,,
Cubicles ,, ...	12 ,, ...	1,500 ,, ,, ...	Permanent
Scarlet Fever			
"A" block	20 ,, ...	2,000 ,, ,, ...	,,
,, "B" ,,	52 ,, ...	1,000 ,, ,, ...	,,

The administrative block is of wood and iron. The nurses reside over the Scarlet fever "B" block. There is an excellent laundry, disinfecting station, ambulance shed with three ambulances, stables, etc. The hospital is well staffed, equipped, and managed. The buildings are connected with the public sewers and water mains.

The total expenditure for the year ending March 31st, 1911, was £6,469. The number of cases treated during 1911 was 350.

No doubt, in the course of time, permanent structures will replace the temporary ones. At present the hospital meets the reasonable requirements of the district.

EPPING. *Vide* Epping Rural.

FRINTON-ON-SEA. Population about 1,500.

No hospital of any kind. A combination with Walton and the adjacent portion of the Tendring Rural District has been suggested but meets with no support.

GRAYS. *Vide* Orsett Rural District.

HALSTEAD. Population 6,260.

This is a small modern hospital on Mount Hill, at the outskirt of the town. There are 3¼ acres of land, enclosed by a brick wall and quick hedge. Water is laid on and the hospital is connected with the sewers. There is an administrative block with nine rooms, a ward block with two wards, for six beds, a laundry, disinfector, ambulance house and ambulance. All are well maintained. No medical officer is appointed and patients are treated by their own medical attendants.

Although so small there is an arrangement with the Rural District Council, the latter paying a retaining fee of £40 per annum, and £1 per week for the maintenance of any patient sent in from the Rural District.

Only nine cases were treated in the hospital during the year ending March 31st, 1911, and the total payments amounted to £432.

The provision against fire is inadequate, and the Medical Officer of Health should have some official control over the hospital.

HARWICH. Population 13,600.

This district has never applied for a County Council grant and I have not seen the hospital for many years. At my first visit it was a cottage hospital with two small wards for the accommodation of four patients, situated in a hollow not far out of the town. There was about an acre of ground which was not properly enclosed, and there was no disinfecting apparatus. I believe two ward blocks were added later. The hospital is rarely referred to in the report of the Medical Officer of Health. In 1906 I find that he remarks that w.c.'s have been substituted for the dry earth closets. It must, however, have been enlarged since in Table III, of the report for 1910 the following information is given :—

Situation : Dovercourt.	Total available beds ...	24
Number of diseases that can be treated concurrently ...		2

ILFORD. Population about 80,000

There is an excellent hospital here of modern construction, together with a detached house for convalescent scarlet fever patients. The whole was erected out of loans. The available land is 11¼ acres, of which about half is properly enclosed.

The original hospital erected in 1898 consisted of three blocks, containing respectively 10, 6 and 4 beds, together with an administrative block, laundry, ambulance shed, stable and coachhouse, mortuary, etc. In 1902 another block for 26 beds and a discharge block were erected, and the administrative buildings were greatly enlarged. In 1905 the convalescent scarlet fever house was erected and in 1909 an additional block for 26 patients was completed. Over the wards are 12 bedrooms for the nursing staff with sitting rooms, etc. There is a disinfecting apparatus. Everything is excellently maintained and save that the laundry is proving too small on occasions, it is adequate for all present requirements.

During the year ending March 31st, 1911, 228 patients were admitted and the total payments were £5,958.

Leyton. Population about 125,000.

The hospital here consists entirely of temporary buildings, situate on a piece of land adjoining the sewage works. The area is only a little over one acre. It is enclosed by a 6ft. brick wall on the side abutting upon the roadway and by an iron fence on the three other sides. All the buildings except the laundry and disinfecting block are of wood and corrugated iron. There have been several enlargements during recent years, which have greatly added to the efficiency of the hospital. There are now six ward blocks with 90 beds (allowing 1,000 c. ft. only for each bed). The 14 nurses employed sleep in a separate block. The Matron and servants reside in the administrative block. I visit annually and never receive any complaints from the Medical Officer of Health, Matron, Nurses or patients. The whole is far from meeting modern requirements, but the Council shrink from the expenditure of £50,000 to provide a modern hospital. A suitable site was purchased a few years ago and may ere long be utilized. The need is not so urgent as to justify me in reporting that the reasonable needs of the district are not met.

The hospital is well maintained and well administered.

Leigh-on-Sea. Population 7,700.

This rising town is without any hospital accommodation, but a suitable site has been acquired and plans prepared. The County Council is pressing the Council to proceed with the erection of a hospital forthwith.

Loughton. Population 5,400.

An arrangement has recently been entered into with the Walthamstow Urban District Council for the reception of Loughton cases in their hospital at Chingford. I understand that a sufficient number of beds is retained and that, so far, the arrangement has proved satisfactory.

Maldon Joint Hospital.

Population served, about 14,000.

This hospital is situated in the parish of Heybridge in the Maldon Rural District, and serves Maldon Borough, the northern half of the Maldon Rural District and the Port of Maldon.

The site covers an area of three acres, about two of which are enclosed by an oak fence 6½ feet high. Half an acre of the remainder is laid out for treatment of the sewage by broad irrigation. The buildings comprise an administrative block, a ward block for ten beds, a laundry and disinfecting block, and a caretaker's cottage. The administrative block has ten rooms. The ward block is divided into two sections on the Local Government Board plan, each comprising a nurses' duty room, with a ward for two patients on one side, and a ward for three patients on the other. There is also an ambulance shed and ambulance, and a mortuary. Water is derived from a boring into the Thanet sands. It is pumped by means of a hot air engine to storage tanks in various buildings.

The hospital is well maintained and administered.

I have suggested that Witham should enter this combination and that an additional ward block for 12 patients be erected.

During the year ending March 31st, 1911, 61 patients were treated in the hospital and the total expenditure was £1,086.

ROMFORD JOINT HOSPITAL.

Population served about 42,000.

This hospital serves the Romford Urban and Rural Districts and is situated at Rush Green in the urban area. Fourteen and a half acres of land were acquired, of which a little over four are properly enclosed. The public water supply is laid on and the buildings are connected to the public sewers.

The hospital was erected in 1901 and enlarged in 1906-7. It is of approved type and all of a permanent character. There are five ward blocks, for 42 beds, an administrative block, and a staff block containing six bedrooms for nurses, beside mortuary, laundry, disinfector, ambulance shed, and caretaker's cottage.

The hospital is well maintained and administered and meets the present requirements of the district. During the year ending March 31st, 1911, 96 patients were treated and the total payments amounted to £2,712.

SAFFRON WALDEN JOINT HOSPITAL.

Population served 17,100.

The small hospital is situated on an eminence about one mile from the centre of the borough, and it serves the Borough and the Saffron Walden Rural District. The land attached to the hospital has an area of 1¼ acres and is surrounded in part by corrugated iron fencing and the remainder by spiked railings. Water is derived from a shallow well and there is no sewer near.

The hospital proper is of modern type and consists of an administrative cottage and a two-ward block (six beds), erected in 1894. At the boundary of the land there is an old farm house, the original hospital, acquired in 1877, and now used for isolating cases of diphtheria. This farm house is badly in want of repair, and if it is to continue to be used a bathroom should be put in, provision made for obtaining hot water, etc. Fireguards are required for the fire places. In case of fire here great difficulty would arise in extinguishing it on account of the want of water, and the appliances on hand for use in emergencies are insufficient. There is no disinfecting apparatus, but the outbuilding which serves as bathroom and mortuary also serves as a disinfecting room. There is no telephonic communication between the hospital and the town.

Eighteen cases were treated in the hospital during the year ending March 31st, 1911, and the total expenditure was £388 10s.

It is obvious from the above description that improvements at the hospital are desirable. The "grant" has been withheld until the necessary improvements are effected. The "grant" for 1910 has been withheld until the necessary improvements are effected.

SHOEBURYNESS. *Vide* Rochford Rural.

SOUTHEND. Population about 62,000.

This hospital is situated within the Borough at Balmoral Road, Westcliff. The 4½ acres of ground upon which it stands is practically surrounded by houses erected

during the last ten years. It is enclosed by a brick wall 6½ to 7½ feet high. The permanent buildings were erected out of loans sactioned by the Local Government Board. The temporary buildings were erected out of the rates.

Dr. Pugh, Medical Officer of Health, gives the accommodation as follows:—

Permanent Structures.	*No. of beds.*	*Use.*
The "King Block" 2 wards of 8 beds each ...	16	... Acute scarlet fever
with 2 isolation wards of 1 bed each ...	2	... Isolation beds
The "Old Block" of 2 wards of 6 beds each ...	12	... Convaloscent scarlot fever
The "Diphtheria and typhoid" blocks, consisting of 2 separate wards each with 2 rooms, the latter having accommodation for 5 and 3 beds respectively.	16	... Diphtheria and typhoid fever.
Temporary Structures.		
The "Allen" block consisting of 2 wards of 6 beds each.	12	... Overflow scarlet fever block
The "Tin house," consisting of 2 rooms of 1 bed each.	2	... Isolation or discharge wards.
The "Berthon" hut of 1 room with 2 beds ...	2	... Isolation wards.
Total ...	62	

The "King" block was completed and brought into use during the year. Fire alarms have been installed, and all the blocks have been painted externally.

In my report to the County Council I certified the hospital for a grant on 36 beds in the permanent buildings on the 2,000 c. ft. per bed basis, but pointed out that the existing administrative block was sadly insufficient, about half the nurses employed having to sleep outside the hospital. The Medical Officer of Health, however, reports that "to cope with the continued increase in the population of the Borough, the Council in September resolved to proceed with the erection of a new ward pavilion similar to the 'King' block, at an estimated cost of £2,200, and an application for the necessary loan has been made to the Local Government Board. In order to make provision for the accommodation of the additional staff requisite when the new block is brought into use, it has been decided to erect the whole of the new administrative block, and not part only as originally arranged."

There is an efficient disinfecting apparatus, ambulances, etc., etc. Horse driven vans for infected and disinfected clothing are being provided.

From the above report it is evident that the defects in the existing hospital are about to be remedied. The hospital accommodation has barely kept up with the requirements of the increasing population, but the practical disappoarance from the Borough of enteric fever has enabled all reasonable requirements to be met. The hospital is efficiently administored.

During the year ending March 31st, 1911, the total expenditure was £3,166, and the number of patients treated 191.

Waltham Joint Hospital.

Population served, about 40,000.

This hospital serves the Urban Districts of Buckhurst Hill, Chingford, Waltham Holy Cross and Woodford. It was erected in 1905 and enlarged in 1908, when Woodford was admitted to the combination. The total cost was £1,480. The Joint Board acquired 10 acres of land in Honey Lane, Waltham Abbey and properly enclosed about 5 acres. Water is laid on from the Metropolitan Water Board mains. The sewage is treated on a sprinkler fed bacteria bed and then passed over about one acre of land. It produces a satisfactory effluent.

It comprises two scarlet fever blocks, a diphtheria block, observation block, excellent administrative block, porter's house, laundry, disinfection station, ambulance house, etc., and has accommodation for 42 patients, on the 2000 c. ft. per bed basis.

It is in every respect a satisfactory hospital and is well administered.

During the year ending March 31st 1911, 46 patients were admitted and the total expenditure was £2,033.

It meets all the requirments of the districts served.

Walthamstow. Population served, about 140,000.

This hospital is in the parish of Chingford, just over the Walthamstow border. By arrangement with the Walthamstow Urban District Council patients are received from Chingford.

Twenty acres of land were acquired and about 6 acres properly enclosed. The hospital was opened in 1901, and has been enlarged since. Water is derived from the Metropolitan Water Board's mains and the drains are connected to the public sewers.

There is a large administrative block, lodge for porter, laundry, electric light station, ambulance sheds, disinfecting station, stables, etc. The isolation accommodation provided is as follows :—

No. 1 Ward block, with 2 wards and 14 beds for acute scarlet fever cases.
No. 2 ,, ,, 2 ,, 28 beds for diphtheria patients.
No. 3 ,, ,, 12 cubicles for special cases and mixed infections.
No. 4 ,, ,, 24 beds for convalescent scarlet fever cases.
No. 5, an observation block for 4 beds, 2808 c. ft. each or 6 beds at approx. 2000 c. ft.

The hospital is thoroughly well equipped and administered and receives the full grant for 84 beds. The convalescent scarlet fever block comprises living and bedrooms, the cubic space for each patient being, in the bedrooms 1399 c. ft. in the living room 600 c. ft., total 1999 c. ft. The cubicle block comprises two sets of six cubicles with plate glass divisions, one set on each side of the Nurses duty room. Each cubicle is entered from the outside, under cover of verandahs which runs the whole length of the building on each side. Each cubicle has 2000 c. ft. of air space and admits of cross ventilation.

Referring to these cubicles the Medical Officer of Health says:—"We have now had 5 years experience of the treatment of patients suffering from scarlet fever, diphtheria, measles, whooping cough and chicken pox, placed side by side and under the same roof, the same Nurses and Doctor in attendance, and not in a single instance has infection been conveyed from one patient to another."

During the year ending March 31st, 1911, the number of patients treated in this hospital was 321 and the total expenditure £7,007.

A lady doctor resides at the Sanatorium. It is the only hospital in the Administrative County with a resident medical attendant.

WANSTEAD. Population served about 14,000.

This hospital occupies a site of 1½ acres between Wanstead Park and the City of London Cemetery. The ground is properly enclosed with 7 feet close boarded oak fencing, high holly hedge, etc. It is connected to the public water mains and sewers.

It comprises two self-contained ward and administration blocks, of wood and iron on raised brick foundations. The scarlet fever block, two wards, accommodates 12 patients, and the diphtheria block, two wards, 8 patients, allowing 2,000 c. ft. for each.

There is a permanent building containing the disinfecting apparatus, a laundry, mortuary, etc. The whole cost about £3,000, and is well managed and maintained. Up to the present it has met all the reasonable requirements of the district. During 1910, 29 cases of scarlet fever and seven cases of diphtheria were admitted.

Not being built by aid of a loan, it does not receive any grant from the County Council.

WITHAM. Population 3,640.

This small Urban District does not possess any hospital. It possesses a site and on several occasions tents have been erected thereon to meet emergencies. The arrangement is unsatisfactory, and at the suggestion of the County Council an endeavour is being made to include this town in the Maldon Joint Hospital District.

WOODFORD. *Vide* Waltham Joint Hospital.

WALTON-ON-THE-NAZE. Population about 2,200.

This small watering place on the coast possesses no hospital. A hospital for the joint use of this district and a portion of the Tendring Rural District is needed.

WIVENHOE. Population about 3,000.

This Urban District has no hospital. Cases are occasionally sent to the Colchester Hospital. Brightlingsea, Wivenhoe and the southern portion of the Tendring Rural District might, with advantage, provide a joint hospital.

BELCHAMP RURAL. Population 4,840.

This district comprises 17 parishes, with a very scattered and continuously decreasing population. There is no large centre of population, and during last year not a single case of infectious disease was notified. The Medical Officer of Health does not appear to feel the want of a hospital. Sudbury (Suffolk) would be the most suitable centre for a hospital combination in which Belchamp could join.

BILLERICAY. Population served about 25,000.

The Rural District Council possesses a small permanent hospital of an unapproved type. It is situated in Buttsbury (Chelmsford Rural District), just over the boundary of the town of Billericay. The Council owns a large field, but only about one acre is enclosed by a good hedge. A caretaker's cottage stands at the entrance to the hospital ground. The hospital is all in one block, and comprises four wards each of 3,000 c. ft., two bedrooms for matron and nurse, kitchen, scullery, matron's room, etc. Standing behind is a block comprising wash-house, laundry, coal store, sulphur room, mortuary, etc. In the large field is an ambulance shed. Water is laid on from the mains. Sewage is collected in a cesspool, and the overflow runs into a ditch and creates a nuisance. There is no disinfecting apparatus.

The place is quite unsuited for an isolation hospital, unless limited to eight beds, and to cases of one disease. With four beds in each ward, the air space per bed is only 750 c. ft.

Brentwood sends cases here, by arrangement, but the whole hospital is not large enough for either district alone.

If a proper hospital were erected, the present hospital might be altered and converted into an administrative block.

BRAINTREE RURAL. *Vide* Braintree Urban.

BUMPSTEAD. Population 2,600.

This is a small rural district comprising six parishes with a stationary population. There is a hospital for the joint use of the Clare (Suffolk) and Bumpstead districts. It is in the parish of Clare, and was provided in the first instance, I understand, for small-pox cases. Only one disease can be treated at a time, and there are only four beds. Few cases of infectious disease occur, and the Medical Officer of Health appears satisfied with the existing accommodation.

CHELMSFORD RURAL. *Vide* Chelmsford Urban.

DUNMOW. Population 16,000.

This district possesses a modern hospital erected out of Loan in 1905 at a cost of £5,325. It is situated in Deadmans Lane, about half-a-mile out of the town of Dunmow; 6¼ acres of land were purchased, and 2 acres properly enclosed.

The hospital comprises an administrative block, and a ward block with four wards each for three beds. Two diseases can be treated at the same time. There is a disinfecting apparatus, ambulance, laundry, etc. Water is derived from a deep well in the chalk, and is raised by a hot-air engine. The sewage is disposed of by broad irrigation on the adjoining land.

The hospital is satisfactorily equipped, administered and maintained, and serves all the reasonable requirements of the district.

During the year ending March 31st, 1911, only 10 cases were admitted. The total expenditure was £923.

Epping Rural. Population served about 19,000.

This hospital serves the Epping Urban and Rural Districts. It is situated on the border of Epping Forest, about 1½ miles from the town of Epping. It was erected out of the rates. The land attached is about two acres in extent, and is enclosed partly by a close boarded fence, and in part by a hedge. The total cost of land and hospital was about £3,400. It comprises two separate pavilions, to one of which an observation ward is attached. It contains 18 beds, and three separate diseases can be treated at a time. Between the pavilions there is a caretaker's cottage, occupied by a man and his wife. There is a detached laundry, a steam disinfector, ambulance, mortuary and the usual offices.

As part of it is of wood and iron and the whole was erected out of the rates, it is not subject to a County Council grant and not regularly inspected.

Until recently it was used by Loughton also. It will suffice for the reasonable requirements of the two districts now using it.

During the year 50 patients were treated therein, 27 from the Rural District, 20 from the Urban District, and three from Loughton.

Halstead Rural. Population served 6,000 ?

Certain cases are sent to the Halstead Urban Hospital, but there is an isolation cottage at Castle Hedingham, in which reside a man and wife. Three bedrooms are available for cases, and six patients can be treated. Originally, I understand, it was acquired for the isolation of small-pox cases, and during the past year the Rural Council arranged with the Urban Council to reserve the cottage for three months for any cases of small-pox which might occur, other cases from the rural district being sent to the Halstead Hospital.

It is desirable that the two districts should combine and take over the existing hospital at Halstead, and provide an additional ward block. This would then serve admirably for the two districts.

Lexden and Winstree. Population about 20,000.

This large and important district possesses no hospital, save a tent which is occasionally erected. The Medical Officer of Health, in his last report, says "A good, well-placed Isolation Hospital would be a great boon." The district is half-moon shaped, and the only central position would be near the town of Colchester.

In 1897 I held an inquiry at the request of the County Council, with reference to the hospital accommodation in this district, and reported that it was unsatisfactory and not sufficient for the requirement of the district. The Medical Officer of Health, at that time, thought that the tents provided would prove satisfactory, and the matter was allowed to remain in abeyance. Several districts reported upon at that time provided hospitals, and some years later, when investigating the results which had occurred from their provision, I was quite unable to show that any advantage had resulted therefrom. In consequence, the County Council ceased to urge the Rural Councils to provide permanent hospitals. There is no doubt, however, that even in Rural areas infectious cases occur at dairy farms, business premises, and in o vercrowded houses which it is desirable should be removed, and that a small hospital, or one or two cottage hospitals would be an advantage to the district.

MALDON, *Vide* Maldon Urban.

ONGAR. Population 10,500.

This is another rural district without a permanent hospital, and during the past year I presented the following report upon the hospital accommodation :—

" Some years ago the Ongar Rural District Council purchased about 1½ acres of ground near the Workhouse. This field abuts upon the main road, but between the road proper and the fence there is a stretch of greensward about 30 ft. wide. About 12 ft. from the fence the Council has erected a wooden shed divided into two compartments. The floor is not made, nor is the shed lined. It is well lighted by windows. The smaller compartment contains a good ambulance with rubber-tyred wheels. The larger shed contains two tents for twelve patients, smaller tents for nurses and caretaker and all the furniture and appliances requisite for equipping the tents when erected. Everything appeared to be in good condition. The tents are aired every summer, and the inventory checked. Behind the shed is a properly constructed well with pump and water cistern. The land is not enclosed by a ' hospital ' fence The hospital was used once last year."

The Council has now arranged with West Ham for the reception of any small-pox cases which may occur in the Dagenham hospital and the Medical Officer of Health informed me that he sent many patients suffering from infectious disease to the London Fever Hospital. He said that he would like to have a small hospital but that he could not recommend the Council to provide one, since he had never really felt the need for one.

The conditions here are somewhat unusual, and although I think the Council would be well advised to erect a small hospital on the present site, I do not think the need is so urgent that the County Council should put in force the Isolation Hospitals Act.

ORSETT AND GRAYS JOINT HOSPITAL.

Population served, about 40,000.

This hospital serves the whole of the Orsett Union. The main hospital was erected out of Loans but temporary ward blocks have been added. The land enclosed has an area of about five acres four of which are properly enclosed, and is situated in Long Lane, Little Thurrock, about 1½ miles from Grays. Water is laid on from the South Essex Co's mains. The sewages is disposed of upon adjacent land by irrigation. The place is very isolated and it has been found impossible, at present, to arrange for telephonic communication with the town, which is very desirable for many reasons, but especially in case of fire.

The hospital comprises an administrative block and three ward blocks each with two wards and nurses' duty room, for 6, 6 and 8 beds respectively. There are other two wood and iron blocks for 20 patients. There is a permanent building of huge dimensions for the disinfector, and a wooden shed used as a laundry and washhouse. The latter is small and otherwise unsuitable. There is a brougham ambulance, and various out-buildings.

Save that the laundry is defective, the hospital is satisfactory. It is well maintained and administered.

During the year ending March 31st, 1911, 63 patients were admitted and the total payments were £1,638. (This probably includes some expenses incurred in connection with two cases of small-pox treated in the separate small-pox hospital).

ROCHFORD AND SHOEBURYNESS JOINT HOSPITAL.

Population served, about 23,000.

This hospital was erected in 1901, from plans approved by the Local Government Board, and a temporary ward has since been added. The cost is said to have been £4000. Two acres of land were purchased at Sutton Ford about half a mile from Rochford, and properly enclosed. The permanent buildings include a block of four wards, each for three beds, and an administrative block, laundry and disinfection block, ambulance shed, etc. There is, taking the whole hospital, provision for three separate diseases and for about 18 patients.

Water has just been laid on from the Southend Co's. mains and a fire hydrant fixed. The sewage is treated on a bacteria bed and then discharged into a tidal creek. The premises are well maintained and administered. During the year ending March 31st, 1911, 38 cases were admitted. The payments during the year amounted to £945.

STANSTED. Population about 7,000 in Essex.

Stansted is combined with Hadham (Herts) for hospital purposes and the hospital is in Herts. It is some years since I visited it and made the following notes :—

"The site comprises an area of over four acres, partly enclosed by a wooden fence and partly by a hedge. There are two ward blocks, both built of timber and slated, and raised from the ground on brick piers. The two scarlet fever wards would take five patients and the two diphtheria wards four patients. Between these wards is a brick building for nurses, etc." I find that an additional scarlet fever ward has been provided and that the accommodation now is :—

3 scarlet fever wards of 5760, 3024 and 5070 c. ft. respectively.

2 diphtheria ,, each of 3804 c. ft.

There is a steam disinfector, ambulance, etc.

The total cost of maintenance last year was £347, but only four patients were treated.

TENDRING. Population about 22,500.

This district possesses a tent hospital only. It contains many populous parishes, and includes Parkeston, the inhabitants of which are intimately associated with the Docks and continental traffic. When I reported upon the district in 1897 I expressed the opinion that a permanent hospital was necessary and recommended Joint hospitals for the numerous Urban and the Rural Districts in the Tendring Union. The Medical Officer of Health now endorses my views, judging from the following abstract from his latest report.

"The isolation hospital consists of two tents containing four beds in each, with a bell tent for nurses having two beds. There is also a large van, fitted up and used as a kitchen when the hospital is in use, and at other times all the appurtenances of the hospital are contained in it, except the floor boards and tent poles, so that it can be moved off without loss of time, more than can be helped. Of course it must take time to put the hospital to work, as besides moving and erecting it, land to put it on has to be acquired, and nurses procured. Only one disease at a time can be treated. There can be no doubt that a permanent hospital in the district would be a great benefit, and often have I regretted that we have not got one, as these cases could be removed and disease arrested in much less time. In fact districts might be combined for the erection of a large central hospital; of course the expense is dreaded, and it must be considerable, but I firmly believe it would be real economy."

A hospital near Tendring would be sufficiently central to serve the whole rural districts and the Urban Districts of Wivenhoe, Brightlingsea, Frinton, and Walton-on-the-Naze. Or, if as has been urged, certain distances are too great, Frinton, Walton and half the Rural District might combine for one hospital, and Brightlingsea, Wivenhoe and the other half of the Rural District combine for a second hospital.

I am of opinion, however, that one hospital would serve all these districts, and that such a hospital ought to be provided. Doubtless ere this the County Council would have made an "Order" had it not been for its unfortunate experience in connection with the Wanstead and Woodford District.

The Hospital Accommodation for the Ports.

The Maldon Port is included in the Maldon Joint Hospital District. Colchester Port Authority possesses a small floating hospital. Harwich, however, is the only port through which disease is likely to be introduced, and in 1907 the Local Government Board directed attention to the inadequacy of the floating hospital. A second vessel has since been purchased with the intention of converting it into an auxiliary hospital, but the Medical Officer of Health does not say whether this has been done.

Arrangements for isolating Small-pox cases.

Barking, East Ham, Ilford, Romford Urban and Rural, Walthamstow, Wanstead, Woodford and Ongar Rural have a binding arrangement with West Ham Corporation to take all their cases into the Hospital at Dagenham. This is a properly equipped modern hospital for 80 beds, but there are corrugated iron hospitals also in the grounds, bringing up the accommodation to 350 beds, and if necessary tents could be erected also. By the agreement each district pays an annual retaining fee of £1 10s. per 1,000 population, and would pay £3 3s. 0d. per week for each case admitted. There is no limit to the number of cases to be received. The agreement is until September, 1914, and is, I understand, renewable.

Leyton has not entered into this combination, and is depending upon its cases being received into the M.A.B. hospitals.

The following districts have Hospitals which are immediately available :—

Braintree Urban and Rural. C. Iron. 18 beds in 4 wards. At Black Notley.

Chelmsford Urban and Rural. C. Iron. 8 beds in 2 wards. At Galleywood.

Colchester. Hospital and cottage at Mayland. 16 beds.

Grays and Orsett. C. Iron Hospital at Grays. Could take 60 cases (with tents).

Saffron Walden Urban and Rural. A Hospital for 5 or 6 beds, adjoining oxisting Isolation Hospital.

Southend. C. Iron Hospital at boundary of Borough ; with 12 or more beds.

Stansted. Belongs to a combination of 4 districts. C. Iron Hospital. 6-8 beds.

Bumpstead. In a combination. Has use of Hospital with 4 beds.

Shoeburyness and Rochford. At Noble's Green. A house and large tent

The following have tents or sheds or buildings which could be quickly utilized, but which are not immediately available :—

Brightlingsea. Two tents for 6 beds each, and can have land at a moment's notice.

Clacton. Tents, and can have land at a moment's notice.

Chingford. A house at Sewage Farm, also a tent.

Epping Urban. A wooden shed for 4 beds. Not equipped.

,, Rural. Tents which they would erect on Mr. C. Marsh's ground.

Halstead Urban and Rural. Would hope to use the cottage hospital at Castle Hedingham which belongs to the Rural District Council.

Walton-on-Naze. Has a tent, but would have to find land.

Wivenhoe. Say they would send cases to Colchester. No agreement.

Billericay. Has tents and land.

Lexden and Winstree and Tendring R. Both have tents and would hope to get land near where cases occurred.

The following have no arrangements of any kind :—

Harwich (would turn patients out of isolation hospital and put in small-pox cases), Brentwood, Buckhurst Hill, Burnham, Frinton, Leigh-on-Sea (has land for tent), Loughton, Waltham Cross, Witham (has land), Dunmow.

The Waltham Joint Hospital Board are considering the provision of accommodation for their district which include Woodford, Waltham Cross, Chingford and Buckhurst Hill, and might arrange to take Loughton cases. Brentwood might make some arrangement with Billericay. The possibility of forming a large combined district for central Essex has been discussed, but, so far, has not proved practicable.

I have had experience during two epidemic periods in Essex, and have concluded that as the large centres of population are all provided for, the smaller urban and rural districts without accommodation could arrange for the provision of tent hospitals when an epidemic threatens, and that there need be no such delay as would affect the process of stamping out.

On the whole the present arrangements may be considered fairly satisfactory.

TABLE XXV.

STATISTICAL INFORMATION RELATING TO ISOLATION HOSPITALS APPLYING FOR A GRANT.

YEAR ENDING MARCH 31ST, 1911.

	Walthamstow.	East Ham.	Ilford.	Romford Joint Hospital.	Southend.	Orsett Joint Hospital.	Waltham Joint Hospital.	Chelmsford Joint Hospital.	Rochford Joint Hospital.	Clacton.	Dunmow.	Braintree Joint Hospital.	Saffron Walden Joint Hospital.	Maldon Joint Hospital.	Halstead.
Total Number of Beds in Hospital	105	124	80	70	62	46	40	23	20	17	12	11	10	10	6
Number for purpose of Grant	84	42	56	42	36	20	42	21	12	17	8	8	6	10	6
Cases admitted during year :—															
Scarlet Fever	130	206	167	70	143	31	29	55	21	17	1	12	13	21	7
Diphtheria	141	113	51	28	44	30	16	31	14	10	4	26	5	39	—
Typhoid Fever	—	8	8	3	1	2	1	—	—	1	5	4	—	1	—
Other Diseases	—	23	2	—	3	2	—	1	3	1	—	—	—	—	2
Total	521	350	228	96	191	65	46	87	38	29	10	42	18	61	9
Permanent Staff Residing in Hospital	26	36	37	17	14	11	10	10	4	4	3	3	3	7	2
Non-Resident Staff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Expenditure for year :—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Structural Expenses	2552 0 0	1614 0 0	1844 0 0	903 0 0	1087 0 0	599 0 0	848 0 0	509 0 0	336 0 0	324 0 0	583 0 0	219 0 0	94 0 0	321 0 0	207 0 0
Establishment ,, ...	4132 0 0	4468 0 0	3881 0 0	1749 0 0	1929 0 0	971 0 0	1148 0 0	1183 0 0	555 0 0	376 0 0	331 0 0	588 0 0	286 0 0	703 0 0	223 0 0
Patients ,, ...	317 0 0	384 0 0	233 0 0	60 0 0	150 0 0	68 0 0	37 0 0	67 0 0	54 0 0	11 0 0	10 0 0	29 0 0	9 0 0	62 0 0	2 0 0
Total	7007 0 0	6466 0 0	5958 0 0	2712 0 0	3166 0 0	1638 0 0	2033 0 0	1759 0 0	945 0 0	711 0 0	924 0 0	836 0 0	389 0 0	1086 0 0	432 0 0
Name of Clerk	C. S. Watson	C. E. Wilson	A. Partington	W. Smith	H.J.Worwood	James Beck	T. J. Tee	Leonard Gray	F. Gregson	G. Lewis	A. S. Floyd	F. J. Wiles	W. Adams	F. H. Bright	R. Morton
Details of Establishment Expenses :—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Food, Appliances, Heating, Lighting, and Repairs	2622 0 0	2571 0 0	2476 0 0	830 0 0	1171 0 0	412 0 0	396 0 0	573 0 0	174 0 0	191 0 0	93 0 0	229 0 0	151 0 0	336 0 0	131 0 0
Rates, Rents and Taxes, Water ... ... }	539 0 0	261 0 0	138 0 0	227 0 0	213 0 0	126 0 0	242 0 0	132 0 0	52 0 0	9 0 0	40 0 0	38 0 0	31 0 0	37 0 0	16 0 0
Office and Other Expenses															
Salaries	971 0 0	1636 0 0	1267 0 0	692 0 0	545 0 0	433 0 0	510 0 0	473 0 0	329 0 0	176 0 0	198 0 0	321 0 0	104 0 0	330 0 0	76 0 0
Total ... ... £	4132 0 0	4468 0 0	3881 0 0	1749 0 0	1929 0 0	971 0 0	1148 0 0	1183 0 0	555 0 0	376 0 0	331 0 0	588 0 0	286 0 0	703 0 0	223 0 0

SECTION III.

SANITARY ADMINISTRATION.

WATER SUPPLY OF THE DISTRICTS WITHIN THE COUNTY.

In 1901 I prepared for the County Council a report on the water supplies in the County. This volume has long been out of print and as there is a continuous demand for it, and I have much information to add, I hope, if time permits, to re-write it, or to incorporate it in one of the Geological Surveys of County water supplies.

The County continues to increase rapidly in population, and the problem of obtaining water becomes yearly more difficult. There are no mountains or extensive moorlands from which surface water can be collected, and the only rivers which can yield a water capable of being made wholesome are the Lee and its tributary the Stort and all the available water from this watershed is taken by the Metropolitan Water Board, but a large proportion of it is utilized for supplying populous portions of the County within the Water Boards area.

Subsoil Water is obtainable from the numerous patches of sand and gravel and wells sunk therein or springs at their borders supply a considerable portion of the rural population and a few urban districts (wholly or in part). From deep wells water is obtainable everywhere but often in limited quantity or of unsuitable quality for drinking purposes. This important subject will be referred to more fully later.

The rainfall is very low only averaging about 24 inches hence a succession of dry years, when the rainfall may not average more than 17 inches, markedly affects the springs and the subsoil water falls very low some wells ceasing to yield. Ponds also may dry up, causing the greatest distress in a few localities where these sources yield the only available supply.

The entire county being agricultural the subsoil water generally is highly nitrated and analysts often express surprise at some of our public supplies which yield nearly one grain of nitric nitrogen per gallon, an amount far in excess of the ordinary text-book standard. Water of this kind if not submitted to recent pollution is perfectly wholesome and amongst the users the proportion of cases of typhoid fever is very low. Greater care is being exercised in the construction of shallow wells, as it is now generally recognized that if a suitable site is selected, and the well is rendered impervious for the upper 8 or 10 feet such a well almost invariably yields a wholesome water, though upon analysis it may not come up to the usually recognized standards of purity.

Subsoil water is used solely for the following public supplies :—

Clacton-on-Sea. Well at Great Bentley.

Danbury and other parishes in the Chelmsford rural districts. Springs on South-side of Danbury Hill.

Purleigh and other parishes in the Maldon rural districts. Springs on the North East-side of Danbury Hill.

Southminster in the Maldon rural districts. Springs at Asheldham.

Great Baddow and Springfield. (Chelmsford rural and urban). Well at Great Baddow. Supplemented by deep well water in summer.

Tiptree in the Maldon rural districts. From well in Inworth parish.

Great Waltham from spring in Great Waltham parish.

Little Waltham ,, Little Waltham parish.

Felstead ,, Felstead.

Spring water forms a substantial portion of the total supply in the following districts :—

The Borough of Colchester. Springs at Lexden supplement the deep chalk supply from well in the Borough.

The Borough of Chelmsford. Two springs at the outskirts of the Borough supplement the deep well supply.

Deep Well Water. Nearly the whole of the County is upon the London clay, but beneath this and extending under the whole county and beyond in every direction lies the chalk several hundreds of feet in thickness. Between the base of the London clay and the top of the chalk are beds of sand and clay (Woolwich, Reading Beds, and Thanet Sand) which in places are over 100 feet thick. When boring for water, a supply is usually reached at the base of the London clay, more is obtained when the Thanet sand is penetrated, and more still may in places be obtained by boring into the chalk, but on the other hand nearly the whole may be lost by opening up a communication with the chalk. Over a certain area in central and South-eastern Essex it is doubtful whether any water whatever is derived from the chalk, since plugging the chalk bores has in several cases increased the supply. Moreover when records have been kept of the water levels when boring, it has been noted that when the chalk was pierced the level fell. The saline constituents of the waters from these wells are identical whether the bore is into the chalk or not. The water contains a good deal of sodium carbonate and chloride and very little calcuim carbonate, and is consequently very soft and totally unlike ordinary chalk water.

The chalk outcrop in the county is limited in area and probably most of the water which it collects flows southward into the Lee Valley, then turns eastward and passes under Ilford and Barking into the Thames. A little doubtless gets into the Cam Valley and is lost to the County. The northern and larger outcrop is north of a line drawn from Bishops Stortford to Sudbury. The southern outcrop at Grays and Tilbury has an area of about nine square miles, but it is continuous with the chalk in Kent and the Thames flows through a valley in it. The water in the chalk here is totally dissimilar to the water from the chalk in other parts of the county and similar to the water obtained from wells on the Kent side of the river. Under ordinary circumstances the flow is from Essex into the river, but if pumping at Grays is excessive the chloride, etc., rapidly increase shewing that there is an influx of tidal water.

The greater the thickness of the London clay the smaller the amount of water obtainable from beneath it, hence in the valleys where the superincumbent strata have been removed water is more freely obtained than on the hills or hill sides. For example, at Wivenhoe a bore made on the elevated ground was a complete failure, whereas a second bore made near the river yielded an abundance of good water. At Bocking a similar result has just been obtained. A bore made on the higher ground to the north was a failure, whilst a subsequent bore in the river valley is yielding a very large quantity of water.

In certain areas, which I am engaged in mapping out, the water under the London clay contains so much salt as to be unusable. In others there are distinct traces of the direct infiltration of sea water. Beyond a certain line extending from Romford, through Ongar to Braintree and Mistley, the water has most of the characteristics of ordinary chalk water. Within a very short distance to the east or south of this line the water is very soft, and practically all the chalk has disappeared and an equivalent of sodium carbonate has taken its place. A change of this kind can easily be brought about by filtering chalk water through certain silicates, but I am not aware of these silicates being found in Essex.

The following public water supplies are derived entirely or almost entirely from wells in the chalk :—

(1) Chalk not covered by London clay :

Saffron Walden Borough.

(2) Chalk covered by London clay :

Tendring Hundred Water Co.'s area
Brightlingsea U.D.
Wivenhoe U.D.
Halstead U.D.
Braintree U.D.
Witham U.D.
Maldon U.D.
Burnham U.D.
Ingatestone in Chelmsford R.D
Writtle ,, ,, ,,
Southend Water Co.'s area.
Shoeburyness U.D.
Stansted.

The Rochford Rural District Water area. Well at South Benfleet.

The South Essex Water Co.'s area. Five wells in different parts of this area.

The Essex and Herts Waterworks Co.'s area. From wells in Sawbridgeworth.

The Mid-Essex Water Co. supplies Dunmow.

Colchester and Chelmsford have already been referred to as obtaining water from deep wells and from springs. A small company has been formed to supply Hatfield in the Dunmow rural district, taking water from the Essex and Herts Co.'s main at Sheering.

There remains extra-metropolitan Essex, which is supplied by the Metropolitan Water Board, with water derived from the River Lee and from deep wells in the Lee Valley and at Barking.

In my 1901 Report to the County Council on the Water Supplies in the County, I gave the following list of parishes with a population exceeding 1,500, which were without a public water supply. Opposite each I have stated what has since been done to provide a supply :—

Parish.	Population 1901 Census.	Rural District.	Work Done.
Gt. Burstead (Billericay)	1859 ...	Billericay ...	Now supplied by the South-end Water Company.
Bocking	3347 ...	Braintree ...	Scheme decided upon. Trial-bore now being tested.
*Finchingfield ...	1333 ...	,, ...	Nothing done.
Gt. Coggeshall ...	2578 ...	,, ...	Public supply provided for these & adjoining parishes.
Kelvedon	1569 ...	,, ...	
Writtle	2718 ...	Chelmsford ...	Public supply provided.
Gt. Dunmow ...	2704 ...	Dunmow ...	Works provided by a Water Co.
Felstead	1945 ...	,, ...	Works provided by a Water Co.
Hatfield Broad Oak ...	1599 ...	,, ...	Supplied by a Water Company taking water from the Herts and Essex Company.
Thaxted	1659 ..	,, ...	Nothing done.
Earls Colne ...	1762 ...	Halstead ...	,, ,,
Sible Hedingham ...	1701 ...	,, ...	,, ,,
Dedham	1500 ...	Lexden & Winstree	,, ,,
*Ardleigh	1426 ...	,, ,,	,, ,,
Heybridge ...	1687 ...	Maldon ...	Scheme under consideration.
Tollesbury ...	1720 ...	,, ...	Trial bore made. Water salty.
Gt. Wakering ...	1820 ...	Rochford ...	Standpipes provided by Southend Co.

In eight out of the 17 parishes supplies have been provided, in three schemes have been decided upon, and in six nothing appears to have been done. The six are Finchingfield, Thaxted, Earls Colne, Sible Hedingham, Dedham and Ardleigh.

There are many other rural parishes requiring water supplies, and which probably could be best supplied in groups. The most important group forms the southern part of the Lexden and Winstree Rural District and includes West Mersea (which is developing fairly rapidly, and has doubtless a population which now exceeds 1,510). These parishes are on the London clay and the sand and chalk beneath yield a water containing an excess of salt—hence the great difficulty in providing a supply. There is no large patch of gravel capable of yielding enough subsoil water. The patch at West Mersea has a spring at the outcrop of the clay on the beach, but as the gravel is becoming riddled with cesspools it is an unsafe source of supply. Apart from this, however, the quantity is comparatively small. A deep well sunk somewhere near Colchester might provide enough good water to supply the whole area, and it may be that Tollesbury (in the Maldon Rural District) could be supplied from the same source.

*The census returns published at a later date than my report shows that many parishes had decreased in population, and that Finchingfield and Ardleigh had fallen below the 1,500.

Taking the County as a whole it is very well supplied with water, but as the population increases the difficulty in supplying will increase not merely because more water will be required but because our deep sources shew signs of depletion. Already more water is being taken from the lower London tertiaries than is coming in from the outcrop or other source of supply, and the water level is falling more and more rapidly all over nearly the whole of the London clay area. Some 10 years ago the fall was estimated at 1 foot per annum, it is now estimated at from 1·5 to 2 feet*, and in the near future the fall may be still more rapid. We shall then have to look to the north of the County to supply the south, and if water cannot be obtained from the chalk in sufficient quantity, the flood waters of the upper reaches of the Colne and Chelmer may have to be impounded.

THE METROPOLITAN WATER BOARD'S AREA.

This comprises the following districts;—

East Ham Borough	... Population 1911	...	133,504
Walthamstow U.D.	... ,,	...	124,597
Leyton ,,	... ,,	...	124,736
Waltham Holy Cross U.D.	,,	...	6,796
Woodford ,,	,,	...	18,497
Wanstead ,,	,,	...	13,831
Loughton ,,	,,	...	5,433
Chingford ,,	,,	...	8,186
Buckhurst Hill ,,	,,	...	4,887
Chigwell ,,	,,	...	3,000 ?
Ilford (part of) ,,	,,	...	20,000 ?
			463,467

Very nearly half the population in Essex is therefore supplied by the Metropolitan Water Board and every Medical Officer of Health reports that the water has been good in quality and abundant in quantity. There is such confidence in its quality that only one Council seems to have thought it necessary to have had an analysis made. The only other reference made to the water supply in this area relates to storage cisterns, which are not always kept covered or fixed in suitable positions. Although the supply is "constant" cisterns are necessary, otherwise during seasons of drought or frost, or during the hours of greatest drought, or during the intermittence of supply for the purpose of repairing mains, etc., houses may be temporarily deprived of their supply of water. In the Local Government Board report on the Metropolitan Water Supply for 1910 it is stated that, although "regulations" are made to guard against cisterns being a source of waste, they are not prescribed. "The extreme daily demand for water which occurs between the hours of 8 and 11 in the morning is met by the cistern supply, and this is gradually renewed as the demand slackens. The work of water conveyance devolving on the mains is in this way distributed throughout a greater part of 24 hours, and neither

* In South-East Essex the water level in one deep well has fallen 20 feet during the last 2 years.

their capacity nor the pressure on them need be so great as in the case of a system of supply in which house storage plays no part and in which they would have to deliver one-fourth of the whole daily supply within the period mentioned above." Cisterns therefore are necessary evils, necessary both in the interests of the Water Board and of the consumers, and every care should be taken to prevent them becoming causes of contamination. There is a cistern on the market which dispenses with the ball-cock and is so enclosed that the access of dust or flies is impossible. Why it is not more largely used I cannot understand unless it is that the expense is prohibitive.

The monthy reports of the Director of Water Examination are sent to the County Council and are so generally satisfactory that I have never considered it necessary to take samples for examination in the County Laboratory.

SOUTH ESSEX WATER CO.

This company supplies the following districts :—

Ilford (part of)	55,000 (estimated)
Romford U.D.	16,900
Barking ,, ...	31,300
Grays ,, ...	16,000
Brentwood ,, ...	6,920
Romford R.D. (nearly the whole) ...	20,000
Orsett ,, ,, ...	20,000
Estimated total	166,120

There are only some thinly populated portions of Romford and Orsett Rural Districts which are not supplied by this Company and no doubt these would also be supplied if the demand were urgent.

There are six pumping stations. These are at Linford, Grays, Ilford (2), Dagenham and Romford. The two first derive water from the chalk outcrop, the others from the deep chalk. A well has also been sunk at Chadwell, but the water has not yet been brought into use. The supply is reported in all cases to be satisfactory. All the samples I have examined have been of excellent quality. Latterly the water from the Grays pumping stations has been comparatively soft, from which I infer that the company is softening the water as required by their most recent Act. The Medical Officer Health for Romford however reports "The supply is good and constant but being very hard, causes a good deal of trouble to householders who have hot-water pressure boilers owing to the frequent calcareous deposit in the pipes." On the other hand the Medical Officer of Health for Grays says—"The reduction in the hardness reported last year has been maintained. Six samples, taken at different periods in the London and Bridge Roads, showed an average of 11 degrees. Extreme cloudiness of the water, especially of that supplied to the eastern portion of the town occurred on more than one occasion during the summer, due to the presence of particles of lime and rust and rendering the water unusable for household purposes until precipitation had taken place. The Company gave an assurance that these

occurrences were not likely to be repeated, and so far this has proved correct." The Brentwood Medical Officer of Health says the supply has been constant and given rise to no complaint. "The water is now softer than formerly." In the Romford Rural District Report there is no comment on the quality or character of the water.

I have examined several samples, chiefly from Brentwood, and have not found the hardness exceed 12½ degrees. The Company has over 300 miles of main ramifying throughout this district.

THE SOUTHEND WATER COMPANY.

This Company supplies the following districts :—

Southend Borough.	population	...	62,700.
Leigh U.D.C.	,,	...	7,700.
Parts of the Rochford, Orsett and Billericay Rural Districts.			

The total resident population will be about 80,000, but in summer, when Southend and Leigh are full of visitors, many more must be supplied.

In the Orsett Rural District water is supplied in Fobbing, Vange and possibly other places. In Billericay District an extensive system of mains has been laid, greatly to the advantage of that area. Billericay, Wickford, Basildon, Mountnessing, Laindon and Little Burstead are more or less fully supplied, mains having been carried to all these parishes. In the Rochford Rural District a supply is furnished to standpipes in Great Wakering and a connection has just been made with the Benfleet mains of the Rochford system, so that water may be supplied to that district should the machinery at the Benfleet pumping station break down. This Company has no less than 21 pumping stations to supply its 80,000 population, or one complete works for each 4,000 population. There are two pairs of storage reservoirs, one at Thundersley and the other at Eastwood. The total storage is 14 million gallons. Besides these there are service reservoirs at Southend, Leigh and Billericay.

The Medical Officer of Health for Southend directs attention to an article in the *Lancet* on the Southend water and adds "No better testimonial to the excellence of the water could be obtained, and the fact that it is given by a paper of the standing of the *Lancet*, and after an independent analysis in their own laboratory, increases its value." The following extract also is from his report :—

"During the past year the Southend Water Works Company obtained Parliamentary powers authorising the construction of thirteen additional pumping stations and the raising of the necessary capital for this purpose, it being estimated that this number of additional sources of supply will be required during the next fifteen years owing to the continued increase of population. When the Bill appeared before the Committee of the House of Commons in June, the Corporation obtained the insertion of a clause rendering it incumbent upon the Company to give notice to the Corporation within twenty-four hours whenever they cut off the water supply to any inhabited dwelling house in the Borough. An amending clause suggested by the Corporation, making it a statutory duty for the Company to allow at all times the Medical Officer of Health of the Borough, or any person duly authorised by him or by the Corporation, to enter on the property of the Company for the purpose of inspecting the works and of taking samples therefrom .was dropped, upon the Managing Director of the

Company giving the Commons' Committee an assurance that the facilities for inspec-on granted in the past to the Medical Officer of Health as an act of courtesy should continue to be afforded at all times."

"No complaint of any kind as to the quality or quantity of the water supplied to the Borough has been received during the year, and I would again testify to the excellent relations existing between the officers of the Council and the officials of the Company; to the General Manager, Mr. Bilham, my thanks are especially due for his uniform courtesy and readiness to afford me any information in his power."

ROCHFORD DISTRICT WATERWORKS.

The Rochford Rural District Council has a public supply from a deep well at the foot of South Benfleet Hill. The water is pumped to a tank on a tower near the top of the hill and then by gravitation, supplies the parishes of South Benfleet, Hadleigh, Rayleigh, Hockley, Hawkswell, and Rochford. Although the mains pass through Thundersley the Rural District Council has no right to supply as the parish is within the Southend Water Company area, and such water as is required is supplied by this Company.

The parishes supplied have a population of about 7,500.

The water is soft and of excellent quality. The supply is constant and there is no complaint about pressure. The total length of the Rural District Council mains is 26 miles 376 yards.

SHOEBURYNESS WATERWORKS.

These are owned by the Urban Council. The water is derived from the Thanet Sands at a depth of about 500 feet. It is soft and of a high degree of purity. The average amount supplied is about 35,000 gallons. The population, exclusive of the Garrison, is about 4,200. The Garrison has its own supply from a similar well. The well does not yield water freely, consequently a hard shallow well water is used for sewer flushing, street watering, and other municipal purposes. The average quantity used daily for these purposes is 25,000 gallons. The pumping arrangement has recently been altered and an increased supply obtained.

Taking the Southern portion of the County with a population, according to the recent census, of over 740,000, no less than 720,000 are either actually supplied by these Water Authorities or are so near the mains that they can be supplied. This is an exceedingly satisfactory condition, since all the supplies are of the highest character. This portion of the County also, though occupying only about one-fourth of the whole area, includes two-thirds of the total population.

The remainder of the County can best be considered if we take the Unions separately as the various public supplies are limited to these areas, with the exception of the Herts and Essex Water Company's mains which ramify in two Unions, and whose water is supplied to a small Company in a third Union area. The Essex and Herts supply may therefore be considered first.

HERTS AND ESSEX WATER CO.

This Company obtains water from two wells sunk into the chalk at Sawbridgeworth, Herts, and they are capable of supplying about 750,000 gallons per day. The mains enter the County at Harlow in the Epping Rural District. In 1907 the Company obtained powers to extend their mains to supply to Roydon, Great Parndon, Little Parndon, and Nazeing, so that now their area includes the whole of the Epping Union (except Chigwell) and nearly the whole of the Ongar Union. Much of the area is very thinly populated and is not at present supplied. The parishes actually supplied are:—

In the Epping Union ... Epping Urban, Epping Rural, North Weald, Latton, Harlow, Sheering, Theydon, Garnon, Theydon Bois, Lambourne (where it meets the Metropolitan Water Board mains at Abridge Village), Netteswell, and Nazeing.

In the Ongar Union ... Chipping Ongar, Bobbingworth, Greenstead, Lambourne, and parts of Stanford Rivers.

At the boundary of Sheering a subsidiary company takes the water by meter and supplies Hatfield Broad Oak in the Dunmow Rural District and they are desirous of extending their mains to Great and Little Hallingbury in the Stansted District.

The Medical Officer of Health for the Epping District says "The extension of the Herts and Essex Water Co. mains into Nazeing has been followed by the closing of the public tank at Nazeing Gate, which is a satisfactory improvement, inasmuch as the tank water was never good, and latterly it had become seriously polluted. In the No. 1 or Chigwell District ten new connections have been made with the mains, and in No. 2 or Harlow District the number was 28. The whole District is now supplied almost throughout either by the Herts and Essex Co. or by the Metropolitan Water Board. The supply from both sources has been well maintained and gives no cause for complaint. The water is of great organic purity, but somewhat hard."

The Epping District may therefore be said to be very satisfactorily supplied with water. The Herts and Essex Co. have a reservoir at Rye-Hill holding 140,000 gallons of water and a service reservoir at Epping.

The Ongar District is not nearly so well supplied but it is much more thinly populated and unless the Rural District Council provides the necessary guarantees there is little hope of much further extension of the water main. One extension is feasible and should be carried out at once. High Ongar village is very compact and within about a mile of the water mains, and these should be extended to supply the inhabitants, who at present depend upon a spring and shallow wells sunk in pervious ground seriously affected by sewage ditches. The thinly populated parishes in this district depend chiefly on shallow wells, and often the supply has to be derived from the boulder clay, in which case the amount of water obtainable is not only limited but the character is unsatisfactory on account of the great hardness. Several samples recently examined by me had a hardness of about 40 degrees, chiefly permanent.

DUNMOW DISTRICT.

This district may be considered next, as it abuts on the two just mentioned and is connected therewith by the recent extension of the water supply of the Essex and Herts Co. Hatfield Broad Oak is one of the largest and most populous parishes (population 1,600) and until quite recently was badly supplied with water. A small subsidiary company was formed a little over a year ago, and takes water by meter from the Herts and Essex Co. at the boundary of Sheering parish. A main now extends from this point to Hatfield Heath and Hatfield Broad Oak as far as Barrington Hall. It is proposed to take a branch from the Heath through Little Hallingbury as far as Hallingbury Place in Great Hallingbury parish. The latter parishes are in the Stansted district. Apparently about 7 miles of mains have been laid and the proposed extension will entail 5 or 6 miles more.

A company called the Mid-Essex Water Co., Ltd., was formed a few years ago to supply water to Dunmow and Felstead. A well was sunk at Dunmow, a pumping station provided, and mains laid. At Felstead water is taken from a spring pond and by means of an oil engine, etc., the village can be supplied. I suspect that at present comparatively few houses are supplied as the company offers the undertakings to the District Council at much under the original cost. These works should be controlled by the Council and it is to be hoped that they will purchase and cause all the houses, now dependent upon more or less unsafe shallow well water, to be connected to the mains. If these could be extended to Thaxted it should be done as this town (population 1,760) is nearly the largest in Essex without a public water supply. The Rural District Council up to the present has not exhibited any great interest in the supply of water to the district, but probably if they take over the works of the company they may extend the supply in various directions. The water, though hard, is of excellent quality. The source of the Felstead supply is not ideal, but the samples I have examined have been quite satisfactory.

Referring to the parishes beyond the limit of the company's supply, the Medical Officer of Health says they "are supplied by public and private wells, most of them shallow, and in a few places pond water is used."

THE CHELMSFORD DISTRICT.

When the boundaries of Chelmsford were recently extended by the inclusion of Springfield, that parish was supplied with water from the Great Baddow waterworks of the Chelmsford Rural District Council. It continues to be so supplied. The other two wards of the Borough are supplied from three sources—a deep well nearly in the centre of the town, and two springs at its border. With reference to the supply generally the Medical Officer of Health reports:—

"From these sources the average daily supply available, is 250,000 gallons; the daily supply to Springfield ward (from the rural works) is about 59,000 gallons. This approximately allows only 17 gallons per day." The water supplied is of good quality. "I have now for some years pointed out that we have absolutely no reserve supply whatever and to a great extent we have been spared serious anxiety in regard to the supply by a sequence of wet seasons. I believe since

1904, when the pumping plant was fixed in the new bore hole in Mildmay Yard, over 500 new buildings, &c., have been erected all of which have received a Water Supply; these include 61 houses on Waterhouse Estate, Public Conveniences, Art School and Free Library, Technical Offices, Education and County Offices, additions to Hoffmann's Works, Marconi's Works, and the Arc Works, &c., so that the daily consumption of water has very largely increased. With this largely increased consumption very great economy has been effected by the reduction of water waste; the Borough surveyor now estimates that throughout the whole of the Borough the water waste does not exceed 300 gallons per hour, equal in point of fact to about three per cent. of the total yield.

This waste, I believe, is a very low percentage which it is not possible to reduce. To face the expected and probable increase in the Borough itself, a further supply of water is absolutely demanded, otherwise the natural expansion of the Borough must be restricted. I am therefore very glad to know that it is proposed at once to sink another deep well. On this point I append an extract from the Borough surveyor's report to you dated 21/xi./10 :—

> "In my opinion a much better site for a further water supply would be near Tile Kiln Farm, between Long Stomps Reservoir and Galleywood. The distance from Mildmay Road pumping station would be nearly one mile 906 yards, or about 633 yards further than Admiral's Park site. It is 180 feet above Ordnance datum, or 70 feet higher than the Admiral's Park site, but it has a great advantage of being within 630 yards of the Reservoir; in fact it is quite adjacent thereto, and the cost of the rising main from the borehole to the Reservoir would only be about £300 against £1,500 for a supply main from Admiral's Park.
>
> The Tile Kiln Farm land, on which it is proposed to make the bore, belongs to Sir Henry Mildmay, and could be acquired at a reasonable figure.
>
> Before going into the question as to whether the additional water supply should be obtained from a well or a borehole, I strongly recommend the Committee to sink, at this point, a small trial borehole 5 inch in diameter, as there are no known borings of the strata in this part of the Borough. It may be held that there are borings at Mildmay Yard, Baddow Road and Great Baddow, which are near enough to guide us with reference to the strata which we may expect at this point, but I am strongly of opinion that we will meet a different geological formation at this point than has been encountered before. Further, I do not think that the Local Government Board would entertain the idea of granting a loan for sinking a borehole at a cost (as estimated in 1903) of £2,500. They would most likely recommend that a trial bore be put down before we undertook such a heavy expenditure. Besides it would be more satisfactory to the Committee and to me, as Engineer, to know that water could be obtained on this site before recommending the larger scheme.

The proposed 5-inch borehole would be 700 feet deep, and as far as I can tell from local information this will be about 250 feet into the chalk. The cost will be £550. When the borehole is completed it would be necessary to have a test-pump for a fortnight; this would be extra cost, so that altogether we should require about £600.

The cost of laying the pumping main from this site to the Reservoir would be about £300, against £1,500 for the gravitation main from Admiral's Park.

If the Committee should agree to this suggestion and decide to apply to the Local Government Board for sanction to borrow the money with which to do the work, it will mean that we shall not commence the boring until possibly next February or March. It will then take two months to do the work, and it will be the back end of the year before anything further can be considered, and the additional water supply will not be available for about two years. In my opinion something should be done to provide an additional water supply before the expiration of two years, as I understand that Hoffmann's Works will be increased by 1,000 extra hands within 12 months. I would therefore suggest that the requisite steps be taken at once so that the work of the trial borehole can be proceeded with at the earliest possible moment.

CUTHBERT BROWN, A.M.I.C.E.,

Borough Surveyor and Water Engineer.

"I sincerely hope this proposed scheme will be successfully carried through as soon as possible. We shall then have a supply of water that will be adequate to meet any demand for some years and at the same time to keep the Borough with a constant supply of water."

With reference to the surveyor's report I am at a lost to know what he means by meeting with a different geological formation at Tile Kiln Farm. I have met a committee of the Council to discuss the site of the proposed bore and have tried to persuade them to select a site on much lower ground. All our experience in this part of Essex proves that the lower the ground and the less the covering of London clay the more abundant the water, and I am of opinion that the council are not well advised to sink at Tile Kiln Farm.

That a more abundant water supply was necessary has long been known and no doubt there are many more suitable sites available. However, it is to be hoped that there will be no unnecessary delay as a break down at the Central Works would be a very serious matter for the town. The two service reservoirs are said to hold nearly one million gallons and if full at the time of a break down would furnish four days supply or supplemented by the spring waters say six or seven days supply, after which there would be a water famine.

Whilst the population is increasing the deep well supply is diminishing and must continue to decrease.

The Chelmsford Rural District Waterworks.

Great Baddow Waterworks. These supply the village of Great Baddow in the Rural District and Springfield Ward in the Borough. The sources are a deep bore with air-lift pump capable of yielding about 4,000 gallons per hour, and a spring, rising into a reservoir through the gravel bottom, which for some time past has been yielding about 100,000 gallons a day. The total population supplied is over 6,000 and during ordinary seasons the springs yield nearly sufficient to supply the whole. The deep bore is used one day a week as a matter of routine and oftener when necessary. The boring was made a few years ago in order to be ready beforehand for any increase in the demand for water. The waters from both sources are soft and of good quality.

Danbury and other Parishes Waterworks. These works supply the parishes of Danbury, Little Baddow, Woodham Ferris, Rettendon, Runwell, East Hanningfield and part of Sandon. Water is derived from two gravel springs one on and the other near Danbury Common. The average daily yield is about 80,000 gallons, of soft wholesome water. A part is raised by pumping to a tank on a tower on Danbury Hill (a new and larger tank has just been constructed to replace the original one) to supply Danbury and Little Baddow. The remainder of the area is practically supplied by gravitation. There is a large balancing and storage reservoir on Rettendon Hill near the extremity of the district served. The population supplied is about 3,600 and the average quantity used is 35,920 gallons daily.

Writtle Waterworks. These works supply a population of about 1,200 persons in the village of Writtle. Water is derived entirely from a deep bore ending in the Thanet Sands (when the bore was continued into the chalk the water was lost). An air lift pump is employed and as the water frequently contains very fine sand a mechanical filter is installed to remove it. The yield is about 3 0,000 gallons a day and the average amount used 12,000 gallons. The service reservoir is on a brick tower.

Ingatestone Waterworks. These works supply the village or town of Ingatestone which is in the parishes of Ingatestone and Fryerning. The population is about 2,000 but the whole is not within reach of the mains. Water is derived from a bored well over 800 feet deep. The ground level is 255 feet + O.D. and no water was found in the Thanet Sands. The chalk was 450 feet from the surface and the boring was beginning to look like being a failure, when water was reached at about 700 feet. The water level is 200 feet from the surface and this necessitates double pumping, the first to raise the water to the surface and the second to force it to the service reservoir on the hill beyond. The yield of the well is only about 40,000 gallons a day and the amount used 25,600. The water is soft and identical in character with that derived elsewhere from the Thanet Sands.

Two other parishes have supplies by main, derived from small springs. At Great Waltham the water is raised by a ram to a small tank on columns; at Little Waltham the spring water is simply carried by gravitation to a few standpipes in the village.

Widford, a parish with about 300 population, is supplied from Chelmsford borough since the houses on one side of the road are in the borough. A public water supply for Broomfield, a parish rapidly increasing in population, has been decided

upon and the Local Government Board's sanction to a trial bore obtained. (The bore is being made and good water has been reached exactly at the depth predicted.)

Most other parishes have public wells with pumps. The largest village with an unsatisfactory supply is Stock. As the Southend Company's mains reach the boundary of the parish and a few houses are being erected near, it may be found practicable to supply the village from this source. The matter is worth the serious consideration of the Rural District Council.

THE MALDON DISTRICT.

This comprises the ancient Borough of Maldon, the Urban District of Burnham, and the Maldon Rural District.

The Borough Waterworks. The Corporation possess two deep wells sunk on the hill and yielding comparatively little water. The borings extend into the Thanet sands. The yield is about 80,000 gallons a day, and this supplies a population of 6,250. As but little is used for manufacturing purposes the Medical Officer of Health says the supply is found sufficient. The water is soft and of excellent quality. Attempts made some time ago to increase the supply from these wells were not successful. There is very little doubt that a supply could be obtained from a single well were the site for the boring carefully selected.

The Burnham Waterworks. The original works derived water from the subsoil, first by a well, then by aid of a series of Abyssinian tubes. These shewing signs of failing a boring was made into the Thanet sands for a supplementary supply. The boring is 419 feet deep and the water is raised by an air lift pump. The deep well yields about 34,000 gallons per day. During the year sanction has been obtained to borrow £870 to extend the mains to Creeksea, a hamlet at the western boundary of the district. The water pressure now obtainable from the water tower is not sufficient to afford a constant supply to the highest houses and the Medical Officer of Health thinks it will be a matter for regret if the increased demand which will follow this extension still further decreases the pressure. Means could easily be adopted for increasing this pressure. The water is soft and of excellent quality.

Maldon Rural District.

The Purleigh and District Waterworks. These works utilize a series of springs which break out in a field at Woodham Walter, and which derive water from the Danbury gravel cap. The springs have been properly protected and the water piped to a reservoir at the lowest part of the field. It is then pumped to a reservoir on the hill above, and a suction gas plant has just been installed to supplement or replace the old and extravagant steam pumping arrangement. The parishes supplied are Purleigh, Hazeleigh, Woodham Mortimer, Latchingdon, North Fambridge, Althorne, Stow Maries and Mayland. The area supplied has a population of about 3,000. Water is laid on to 611 houses and farms, and the amount of water used is about 27,000 gallons a day. As the springs yield 60,000 and more is available, there is an ample margin. The total length of mains is 31¾ miles or one mile for every 19 premises. Towards the extremity of the system the pressure is variable and frequently not adequate. Mr Eaton has been consulted, and if his suggestions are carried out no doubt this defect will soon be remedied. The water is soft and of excellent quality.

Southminster Waterworks. A spring at Asheldham is utilized. It rises in a reservoir and is pumped to a tank on a tower near the spring. It then flows by gravitation to supply the town. The spring yields about 30,000 gallons of water a day and supplies a population of about 1,500. The service tank holds about 12,000 gallons. Pumping is by means of steam plant, which is getting aged. It would probably be found economical to substitute a suction gas plant. There are other springs quite near on the Council's ground, which may sometime be required for supplementing the present source. The water is soft and of very good quality.

Tiptree Waterworks. This growing village, in the parish of Tolleshunt Knights, has an excellent supply of water from the subsoil (gravel), at the boundary of the parish. The yield is from 15,000 to 20,000 gallons a day, and the water is raised by means of a windmill to a tank erected upon the highest part of the Council's area. It then flows by gravitation to supply the village and the jam factory of Messrs. Wilkins. There is a great want of water in the adjoining parishes, especially in those in the Lexden and Winstree District, and the question of supplying these has been considered. As Tiptree is continuously increasing in population, it has been decided not to supply water beyond the limit of the Maldon District, but the mains have been extended to supply certain houses in Tolleshunt D'Arcy parish. The water is soft and of good quality, but has a tendency to act upon iron and galvanized iron pipes.

There are public wells in most other parishes, and during the year a bored well has been completed to supply Mundon. The cost was £390. The boring was a success.

Parts of Heybridge, the most populous and prosperous parish in the district, are badly supplied with water. Mr. Bentall, who owns the ironworks and a large proportion of the cottages in the village, supplies the latter from a deep well within the ironworks. The mains are his property, and negotiations are now in progress for their extension. An old boring is being opened out and re-lined, and if it yields a sufficiency of good water it is hoped that a favourable arrangement will be made for the supply of the whole village.

Another populous parish in urgent need of a water supply is Tollesbury, a well-known yachting and oyster fishing centre. A trial bore is being made here, but the result is doubtful as it lies within the area of brackish water. (The bore has since been made and both the water in the Thanet Sands and in the chalk found to contain about 80 grains of salt per gallon.)

At Steeple the fall of the water level necessitates the deepening of the sunk portion of the bored well and the provision of a lift and force pump. The extension of the Burnham mains will permit arrangements being made for the supply to certain houses in Creeksea parish. There are several parishes with unsatisfactory water supplies, but at present no feasible suggestion for their improvement has presented itself.

STANSTED RURAL DISTRICT.

The town of Stansted has a public supply owned by a private company. The company purchased the works of a private individual who had supplied a portion of

the town in a somewhat primitive manner. New mains were laid, a service reservoir provided, and the well improved. The well is situated at the Mill at a considerable elevation but the chalk here is not far from the surface. The population of the parish is about 2,300. The yield of the well, which is sunk 100 feet and bored another 100, is said to be far more than is required for the population served and the quality is satisfactory. Ten additional houses were connected with the main during the year. The other parishes in the district depend for water upon shallow wells, but if the Hatfield Company extend their mains through the Hallingburys a better supply will be available.

SAFFRON WALDEN DISTRICT.

Saffron Walden Borough. The only public supply in this district is that of the Borough of Saffron Walden. The water is derived from a well bored (in 1899) 350 feet into the chalk and lined with steel tubes 8½ inches in diameter. There is a pumping chamber 15 feet deep. At the trial pumping at the rate of 10,000 gallons per hour continued for 24 hours the level of the water only fell 9½ feet and when the rate was increased to 15,000 gallons per hour it fell to 13 feet. The water is typical chalk water and therefore somewhat hard, consequently a softening process was adopted and works very satisfactorily, the hardness being decreased from 26 degrees to 11 degrees. The population of the Borough is about 6,300 and recent extension of the mains permits of nearly all being supplied.

Saffron Walden Rural District. The following description is taken from the report of the Medical Officer of Health. "The water supply of this district is derived chiefly from wells in the chalk. In the valley a sufficient supply of water is obtained by means of shallow wells dug in the chalk, or in the gravel overlying the chalk, but on the higher ground where the chalk is covered with boulder clay the wells are deep, and many of the inhabitants have to depend upon ponds and artificial reservoirs. In none of the parishes is there any supply from public service, but most of the parishes have one or more public pumps, wells, or standpipes, belonging to the District Council."

The County Council had to complain about the unsatisfactory character of the supply to Wimbish, and the various ways of improving the supply, now chiefly from ponds, is being considered.

In this district the ground water level falls rapidly to the north in the Cam Valley. It is probably highest at Rickling Green, where the rest level is about 218 feet + O.D. and lowest at Great Chesterford, 124 feet + O.D. Some wells recently sunk to the west of the district have yielded exceptionally hard waters, containing large quantities of sulphates.

There are several populous villages in this Rural District such as Newport and Great Chesterford which might be provided with public supplies to their advantage.

BUMPSTEAD DISTRICT.

This small district of six parishes has no public water supply. The chalk is covered with gravel and alluvium in the valleys and with boulder clay on the hills. Steeple Bumpstead (population 854) is the largest village and has no public pump.

Water is derived from private wells and two ponds. A better supply is desirable. Ashdon is supplied by two springs, and the other parishes have public as well as private wells.

BRAINTREE DISTRICT.

This comprises the Urban Districts of Braintree and Witham and the Rural District of Braintree. The two former have public supplies owned by the respective Councils, and there is one important public works in the Rural District. In this district the chalk yields waters of distinctly different characters and there is a sharp line of demarcation passing between Braintree and Bocking, adjacent parishes. In the Pant Valley to the north of Braintree and near Bocking Mill the surface of the chalk is about 44 feet higher than at the Braintree Waterworks, south of the town and in the Brain Valley, and the water level is about 30 feet higher at Bocking. Any flow of water therefore should be from Bocking towards Braintree, but if it does go in this direction it must undergo a marvellous transformation, as is shewn in the table of analyses, carbonate of soda replacing most of the carbonate of lime, and the chloride of sodium increasing markedly.

	Bocking New Boring.	Braintree Waterworks Well.
Level of ground surface ...	133ft. + O.D. ...	145ft. + O.D.
,, top of chalk ...	34·5ft. − O.D. ...	78ft. − O.D.
,, water at rest ...	123ft + O.D. ...	94ft. + O.D.

Saline constituents in parts per 100,000.

Calcium carbonate ...	21·25	4·75
Magnesium carbonate ...	4·4 ...	5·1
Sodium carbonate ...	3·1 ...	18·9
Sodium sulphate ...	9·0 ...	11·5
Sodium chloride ...	28·05 ...	68·3
Silica, etc.	1·2 ...	0·95
Total ...	67·0 ...	109·5

Braintree Urban District. The works are situated near the railway station and derive water from two deep wells, one of which was recently deepened. At the test pumping at the rate of 15,000 gallons per hour for 24 hours the water level fell 7ft. A gas pumping plant was installed and a larger low level reservoir is now being constructed. The high service reservoir holds 45,000 gallons and is on a brick tower. The supply is constant and the water of excellent quality. The town of Braintree comprises the more populous portion of Bocking parish in the Rural District and the town mains extend a short distance into Bocking to supply a small number of houses. The population supplied from the Braintree works is about 6,100, so that there is now an abundance of water since the deepening of the well, but the continuous fall in the water level causes many to doubt whether Bocking could safely be supplied from this source also. This latter parish has a population of over 3,000, but the whole would not be supplied unless the entire parish were added to and included within the Urban Districts boundary.

Witham Urban District. In 1903-4 entirely new works were constructed to supply this town, at a site in the Brain valley, about 1 mile north-west of the town, 103ft. above O.D. Two bores were made about 15ft. apart and chalk reached at 191ft. below O.D. The borings were continued to a total depth of about 600ft. The waters obtained were similar in character, but not identical. They corresponded fairly with water from the Braintree well further up the valley, but contained a little more salt. The rest level of the water was 83ft. + O.D., or about 11ft. lower than at Braintree.

The steel tubes were continued 25 feet into the chalk, but notwithstanding, the Thanet sand gained access to the water and caused very serious trouble. It is tolerably certain that the water obtained comes from these sands, or that very little is from the chalk. The water tower and service reservoir are at the works.

The population served is about 3,450, and the supply is said to be continuous and satisfactory in every way.

Braintree Rural District.

Coggeshall Waterworks Area. These works were completed during the year and the Medical Officer of Health says "At the time of writing this report, water has been flowing through the mains . . . . for some time and applications from owners of houses, to be connected up, come in increasing numbers. The completion of the Coggeshall Water Supply, comprising as it does the supply of pure water to Great and Little Coggeshall, Kelvedon and Feering is an achievement the value of which cannot be over-estimated."

The boring was made in 1908 on a site to the north-east of the town of Coggeshall, at an elevation of 112·35 feet above O.D. Chalk was reached at a depth of 255 feet and at between 350 and 420 feet the pressure greatly increased, the water rising to within 19 feet of the ground surface. The bore-hole is 9 inches in diameter. At the test pumping 6,500 gallons per hour were raised continuously for 14 days and the water level fell to only 16 feet and recovered almost at once when pumping ceased. Pumping at the rate of 10,000 gallons an hour reduced the level to 47 feet from the ground surface. The water was soft and alkaline and though it contains a fair amount of salt it is palatable and excellent for all domestic purposes. A pumping station was erected, and a storage and service reservoir constructed on higher ground.

At first the works were intended to supply Great Coggeshall and a part of Little Coggeshall but when such an abundant supply of water was obtained it was decided to include Kelvedon, Feering and the whole of Little Coggeshall in the water area. The population to be supplied is about 5,000.

Bocking. A trial bore was made here about 2 years ago. Unfortunately the site was too elevated and the amount of water obtained so small that it had to be abandoned. Another site was selected near the lowest point in the parish and the boring has been most successful. The water is somewhat hard and almost identical with that supplying Halstead. I asked the Medical Officer of Health for that town if the hardness was very objectionable and his reply was : "Though very hard, furring boilers and kettles, yet the inconvenience caused was not such as to lead the Council to go to the expense of softening." The water at Saffron Walden is barely as hard

yet the Council long ago put down a softening plant. The whole process there is conducted in a comparatively small room, and with very little trouble and at a cost of nine-tenths of a penny per 1,000 gallons. The engineers to the Bocking scheme, Messrs. Sands and Walker are now preparing the necessary plans, &c., for the completion of the works.

Terling. In this parish spring water rising in Lord Rayleigh's grounds is collected and pumped by means of an undershot turbine driven by river water into mains which supply the village.

The other parishes in the district have no public supply, but the question of providing one for Hatfield Peverel is under consideration. The water supplies to Cressing and Finchingfield admit of improvement and doubtless will, in their turn, receive attention.

HALSTEAD DISTRICT.

This comprises the Urban and Rural Districts of Halstead and the only public supply is that for the Urban District.

Halstead Urban District. The works are owned by the Council and originally water was obtained from a well 300 feet deep sunk on the hill in the town, with a service reservoir on a tower immediately over the well. The yield was insufficient for the demands of the town and in 1890 a new well was sunk near the river. At 220 feet an abundant supply of water was encountered but the boring was continued to 254 feet. The water rose to within 6 feet of the surface and the test pumping made practically no impression upon the level and great difficulties were encountered in sinking the pumping well on account of the enormous volume of water to be dealt with. The rising main is connected with a new reservoir on the site of the old works nearly a mile away. This holds about 84,000 gallons the total storage of the old and new being 126,000 gallons. At the old works a gas engine has been put down and is used one day a week to see that it is in order, &c., in case it should be necessary to use these works. At the new works steam power is used and it is estimated that about 140,000 gallons are pumped daily, equal to 20 gallons per head of population served.

The water is very hard but otherwise of excellent quality. The supply is constant. A few houses are permitted to use from standpipes.

Halstead Rural District. This comprises 15 parishes and a portion of Halstead parish not included in the urban area. Three of these parishes are fairly populous, Castle Hedingham, Sible Hedingham, and Earls Colne. There is no public supply in the district save public wells with pumps of which there is one or more in nearly every parish. Almost the whole area is covered with Boulder clay, the London clay only outcropping in the valleys.

Earls Colne and the adjacent portion of White Colne have the greatest aggregation of houses and a water supply is urgently required. Mr. R. Hunt who owns the Ironworks, supplies all his cottages from a main connected with the well at the works A sub-committee of the Sanitary Committee of the County Council recently met Mr. Hunt to see if an arrangement could be made for the whole town to be supplied by him. The conclusion arrived at was that this was impossible, and it remains therefore for the Rural Council to further consider the matter. Water is abundant here in the Thanet Sands and chalk and at a very reasonable depth.

BELCHAMP RURAL DISTRICT.

This small district has a continuously decreasing population. It has fallen from 6,200 at the 1881 census to 4,676 at the recent census. There are 17 parishes not one of which has a public water supply. The underlying geological formation is chalk which is covered on the higher ground with boulder clay and in the valley with drift sand, gravel and brickearth. In 1905 Dr. Holden, Medical Officer of Health, summarised the supplies as under :—

Population supplied from Public pumps	24·6	per cent.
,, ,, ,, springs	6·6	,,
,, ,, ,, private wells	52·8	,,
,, ,, ,, rain water tanks	·2	,,
,, ,, ,, ponds	14·8	,,
,, ,, ,, brooks and ditches	1·0	,,

Reporting for the past year the Medical Officer of Health says :—" Many of the wells go down into the chalk formation, others get a good supply from springs in the interglacial gravels of the boulder clay. . . . There are 9 public wells supplying the most populous parts of the district ; the water from these is sufficient and pure. There are numerous private wells, four new ones were sunk this year, three of which were to take the place of condemned wells. . . . Steps are being taken to have a public well in the parish of Belchamp St. Pauls where it is much required."

LEXDEN AND WINSTREE DISTRICT.

There is no urban authority in this area the whole being under the control of the Lexden and Winstree Rural District Council. Two parishes have a public water supply, Rowhedge and Stanway. The remaining 31 parishes are supplied from deep and shallow wells, springs, ponds, etc., and in some water has to be carted from a distance. The whole area is on London clay, capped on the west by an extensive bed of gravel and sand and on the East by Boulder clay, whilst to the south the London clay is exposed. Unfortunately to the south the Thanet sand and the chalk yield a water which contains too much salt to be potable. Most of this area is very thinly populated, but West Mersea is developing as a yachting centre and seaside resort and this parish and Salcot, Virley, Great and Little Wigborough, Abberton, Langenhoe, Layer Marney and Layer-de-la Haye are sadly in need of a public supply. Every deep boring in this area however yields water containing over 70 grains of salt per gallon, but towards Colchester there is a marked improvement, a very good water being obtainable.

Dedham is next to East Donyland (Rowhedge) the most populous parish (about 1500) and the Medical Officer of Health has frequently suggested a supply. He thinks that a spring near yields sufficient water to supply the village.

Rowhedge Water Works. These belong to the Rural District Council. The village is in the parish of East Donyland on the west bank of the Colne, and abuts on the southern boundary of the Borough of Colchester. In 1902 a boring was made and chalk reached at a depth of 104 feet. At 140 feet sufficient water was obtained. A pumping station was erected, and a service reservoir placed on

a tower on the elevated ground behind the village. At the trial pumping continued at the rate of 6500 gallons per hour for 14 days, the water level was only reduced from 9 feet to 16 feet below the ground surface which at this point is 12·5 feet above O.D. The water is about 10 degrees of hardness and contains 19 grains of carbonate of soda and 42 grains of salt per gallon. Mains are laid through all the streets but the whole of the houses are not yet supplied.

Stanway. The public supply here is from the Colchester Borough mains, and only extends to the houses in London Road as far as Beacon End. Stand pipes are provided from which the inhabitants fetch water, and those houses within 200 feet unless having a good independent supply, are rated. About 150 houses are supplied.

COLCHESTER BOROUGH.

The waterworks belong to the Corporation. Water is derived from a deep well in the town and from springs at Lexden. When boring the well chalk was reached at a depth of 143 feet or at a little over 100 feet + O.D. and the boring was continued to 410 feet. The well was capable of yielding nearly a million gallons per day but in 1902 it shewed signs of decreasing and an additional source was found at Lexden where some very free flowing springs exist. These and the surrounding land were ultimately acquired, and when the collection was completed it was found that the yield was 500,000 gallons per day. The springs are well protected and yield an excellent water.

The service reservoir is on a tower near the centre of the town. It holds 220,000 gallons.

The deep well water is of an interesting character. It is both "calcareous" and "alkaline" containing sufficient carbonates of calcium and magnesium to make it moderately hard, together with carbonate of sodium and salt. It appears to be a mixture of "calcareous" and "alkaline" waters, the former probably coming from the north and the latter from the west.

In the last report of the Medical Officer of Health the waterworks superintendent says that besides the Garrison premises 9279 houses are supplied, or an estimated population 44,299. The quantity of water pumped to the water tower was about 307 million gallons for the year. This does not include about 45 million gallons supplied to the Great Eastern Railway Company. The average consumption per head per day is 18·4 gallons.

The question of a covered service reservoir has been considered and a site approved. Samples of the Borough supply are bacteriologically examined every month and invariably found satisfactory. There are still a few private wells in the Borough, and some of these have been condemned during the past year and water laid on to the houses.

THE TENDRING DISTRICT.

This area is one of the most important in the County. It includes the Borough of Harwich, the urban districts of Walton, Frinton, Clacton, Brightlingsea and Wivenhoe, and several large villages.

The Tendring Hundred Water Co. supplies a large portion of the whole population. The Company's area of supply includes 22 parishes in the north-east of the district, and about 80 miles of mains have been laid, ramifying through 18 parishes.

The Company was incorporated by Act of Parliament in 1884, and has since obtained extended powers in other Acts. The headquarters are at Mistley, where are situated two deep bores into the chalk from which the whole of the water supplied was originally derived. In 1906 a new well was sunk in Lawford parish about one mile from Mistley, and modern works erected. This well yields such an abundance of excellent water that, I understand, the whole of the area is now supplied from these works. There are two storage reservoirs, one at Dovercourt holding 375,000 gallons, and the other at Frinton holding 75,000 gallons. High-level service tanks have been erected to ensure an adequate supply to the highest portions of the district. One trunk main passes through Bardfield to Wix where it divides, one branch going through Ramsey to Parkeston, Dovercourt and Harwich, whilst the other passes through Beaumont and Kirby to Walton-on-the-Naze. Another trunk main takes a more southerly direction to Tendring, Thorpe and Kirby to Frinton, and a branch is given off at Thorpe for the supply of Little Clacton. The two trunk mains have connecting branches at Thorpe and Frinton, and near Mistley at Wix.

The supply is constant and under considerable pressure. The water resembles that of Colchester, containing carbonates of lime, magnesia and soda. The water is somewhat hard but of great organic and bacterial purity.

The Medical Officers of Health for Harwich, Frinton and Walton, all report that the supply during this year has been in every respect satisfactory. The Medical Officer of Health for the Tendring Rural District would like the Company to carry their mains round through Weeley to Little Clacton, but says "he cannot prevail on them to do so."

Clacton-on-Sea. The Council's works are at Great Bentley. When the works of the original Company were taken over water was derived from the subsoil around Clacton, a deep boring failing to (?) yield any usable water. The Urban District Council acquired land at Great Bentley, 12 miles from Clacton, upon which some powerful springs arose and commenced to take water from the gravel here, constructing an underground tank, a pumping station, etc., and conveying the water by mains passing through St. Osyth to the Clacton system. A trial boring was made on the Great Bentley site, and chalk reached at a depth of 214 feet. The water obtained from the chalk, however, contained so much salt as to be useless for the purpose of a public supply.

The supply from Great Bentley is supplemented by pumping from the gravel near the town, at one of the sites of the old Company. From a recent examination of the Great Bentley area I am of opinion that more water is available here. The service reservoir is upon a tower in Clacton, and before passing into this tank the water is passed through small sand filters.

At present, the Medical Officer of Health says the water is excellent and abundant, but he adds, "The proposed deep well into the chalk has not yet been

made, but this must be put in hand very soon." It is tolerably certain that there is plenty of good water obtainable from the chalk within reasonable distance of Clacton, but great care must be taken to keep outside the 'brackish' area.

Wivenhoe Urban District. This parish became an urban district in 1898, and the Council early set about providing a public water supply. The Local Government Board sanctioned a loan for a boring to the north of the town, and chalk was reached at 200 feet. The boring was continued down to 500 feet, but the water obtained being small in amount and containing 82 grains of salt per gallon the Board refused to permit any further expenditure. I was then consulted, and suggested a site to the south of the town, near the river and but 18 feet above O.D. . . . Chalk was reached at 110 feet, and 10 feet lower an abundance of water was struck. The boring was only continued to 130 feet. The water rose to within 13 feet of the surface, and pumping from the bore-tube at the rate of 9,000 gallons an hour only lowered the level 5 feet. There was, therefore, a superabundance of water and the quality was excellent, the salt per gallon being under 50 grains. A pumping station, service reservoir, etc., were constructed and the mains laid throughout the town. Recently these have been extended and the Medical Officer of Health reports that "the great majority of the houses are now within reach of the Council's mains, although there are still a number which have not availed themselves of this source of supply, in most cases being served by shallow surface wells." It is unfortunate that this town is decreasing in population, the numbers having fallen from 2560 in 1901 to 2376 in 1911.

Brightlingsea Urban District. This parish became an urban district in 1896 and immediately proceeded to provide a public water supply. A boring was made five-eighths of a mile north of the railway station at a point 80 feet above O.D. Chalk was reached at 189 feet and the boring continued to a total depth of 213 feet. A second boring was afterwards made. The water level was 73 feet from the surface and trial pumping at the rate of 6,000 gallons per hour reduced it to 136 feet but it very rapidly rose to its original level upon the cessation of pumping. The water is calcarious and alkaline but it only contains about 16 grains of salt per gallon. The pumping station, service reservoir, &c., were then completed and such mains as were necessary laid. (A small company had previously supplied a part of the town with water from the gravel near. This supply became contaminated, hence the action of the Council in providing an entirely different source of supply). All the surface wells in the town are not yet closed. Referring to the supply the Medical Officer of Health reports "The water is free from all risk of pollution and is of excellent quality, its only disadvantage being its hardness. This hardness is of a kind called 'temporary' and is removable by boiling. The consequent furring of cooking utensils prejudices the public in favour of surface well waters, which, though having a high degree of hardness, but of the kind unmovable by boiling, does not fur the cooking utensils. A suggestion was made last year that the Council should consider the advisability of adopting a process for removing this temporary hardness, but this has not been done. Such processes are in use, and although they cost money, there is a gain in health and some economy as the softened water is better for washing and does not spoil the cooking utensils." (The 'gain in health' is very doubtful.—J.C.T.) This is another small urban district with a decreasing population. In 1901 the population was 4,501, in 1911 it is 4,404.

Tendring Rural District Area. There are several populous parishes still unsupplied within the limits of the Tendring Hundred Water Company's area, Ardleigh and Great Oakley being the most populous. Outside this area St. Osyth, Great Bentley, and Little Holland are not adequately supplied with water. The Rural Council have not provided any public supply for any portion of their district. A small portion of Great Bentley is supplied from the Clacton main, and this runs through St. Osyth but does not supply it. Referring to these matters in his last report the Medical Officer of Health says: "The water supply for the village of Great Bentley is being looked after by the Local Government Board, one of whose Inspectors recently held an enquiry. The proposed new supply for the locality of Mill Street, St. Osyth, has not yet been carried out, although various unfavourable analyses of existing wells have been made. . . . The supply for the village of Ardleigh cannot be called satisfactory, and at Little Holland there is a large building estate for which both a drainage scheme and a water supply should be provided. The village of Weeley and the locality of Weeley Heath, where there are several building estates, also require water."

I had intended including detailed analysis of all the public supplies in the County but this portion of my report is already so long that I have decided to leave this over until next year when I can not only give the analyses but prepare a map showing the areas yielding waters of various characters and other information of permanent interest.

ON THE POLLUTION OF STREAMS.

Last year's report contained a map shewing the watersheds of all the rivers in the county. This shews that the western fringe of the county drains into the river Lee and its tributaries, the river Stort and the Pincey and Cobbin's brooks, that a larger area including the rivers Roding, Rom, Pyneor Bourne, and Ingrebourne, drain into the Thames estuary, that a small area to the extreme south-east is drained by the river Crouch into the North Sea, that nearly the whole of central Essex is drained by the Blackwater, and the rivers which unite to form that stream, also into the North Sea, that an adjoining area to the north is drained by the Colne, which enters the sea between St. Osyth and Mersea Island, and that a narrow strip forming the northern border of the county drains into the river Stour which enters the sea at Harwich, and finally that a small portion at the extreme north-west is within the Cam drainage area. The river Lee and its tributaries are controlled by the Lee Conservancy Board, the river Thames and its tributaries for a distance of three miles from their junction with that river are under the control of the Port of London, and over tidal waters the County Council has no control, so that the number of streams over which the Council can exercise effective supervision is limited.

Notwithstanding, the County Public Health and Housing Committee pay a great deal of attention to the subject; large numbers of river waters and sewage effluents are examined every year and the sewage works affecting any stream under our control are regularly visited, and others when occasion requires. Reports on these are made at each meeting.

In my report for 1904 a somewhat detailed description was given of every sewage works in the county, and since then the improvements made have been chronicled. As was done in that report, the sewage disposal works in the county can be divided into the following groups :—

1. Sewage discharged in a practically crude state into the sea or tidal river :—

   (*a*) Into the sea : – Harwich, Walton, Frinton, Clacton, West Mersea, Shoeburyness, and Southend.

   (*b*) Into tidal rivers :—Manningtree, Parkeston, Hadleigh, South Benfleet, Maldon, and Heybridge.

2. Sewage submitted to some kind of chemical treatment :—

   Barking, Brightlingsea, Leyton, and Saffron Walden.

3. Sewage submitted to some kind of bacterial treatment :—

   Brentwood, Braintree, Buckhurst Hill, Burnham, Chingford, Colchester, East Ham, Epping (part of), Grays, Halstead, Ilford, Leigh-on-Sea, Loughton, Waltham Holy Cross, Wanstead and Woodford Urban Districts, and the following populous parishes in the Rural Districts :—Tollesbury, Writtle, Rochford, Upminster, Hornchurch, Great Warley, Rainham, Dagenham, South Weald, Chigwell, Harlow, and Stansted.

4. Sewage treated on land by broad irrigation or intermittent downward filtration :—

   Chelmsford, Epping (part of), Romford, Walthamstow (part by bacteria beds), Witham Urban District, and the following populous parishes in Rural areas :—Tillingham, Tolleshunt D'Arcy, Latchingdon, Ingatestone, Abridge, Chipping Ongar.

In a few other villages besides those mentioned some attempt is made to keep back solid matter from the streams by the use of a cesspool with or without the addition of a little alumino-ferric to the sewage. The great majority of villages however discharge sewage into ditches or into road drains, which naturally take the shortest course to the nearest stream. These cases are very difficult to deal with. To provide sewers and sewage disposal works for a village is an expensive matter, far more expensive in proportion than similar provision for a town of moderate size. Moreover most of these villages require water supplies also and this necessity becomes markedly accentuated when sewers have been provided. In very many instances the cost of providing both is actually beyond the borrowing powers of the parishes, hence it is often necessary to decide between a sewage works or a public water supply. Almost invariably my advice is to provide the water supply and let the sewage works wait, but occasionally the necessity for drainage is the more pressing.

With effective sanitary supervision and the expenditure of comparatively small sums in providing for the cleansing of ditches or the partial purification of the sewage before it is discharged into a stream, nuisances from the disposal of sewage may be reduced to a minimum, and the pollution of streams considerably decreased. Unfortunately Rural Authorities do not, as rule, discharge these duties efficiently and as a consequence sewerage schemes ultimately must be imposed upon them.

Whilst most urban districts dispose of their sewage satisfactorily, there are many large villages with sewers of a kind which seriously pollute our rivers. In others, ditch nuisances of a serious character arise, but there is little pollution of the river except perhaps after heavy rainfalls. It must not be forgotten also that the provision of sewers and sewage disposal works often adds to the pollution of streams. The sewage of villages is generally disposed of upon gardens, a portion gets into ditches and is absorbed by the ground, and some little may get directly into a stream. The sum total however is often so small that the effect upon the water in the stream is inappreciable. Let the village be sewered and the whole of the sewage treated by the best modern methods, the effluent when it gets into the stream appreciably affects it. Therefore as far as the purity of our streams is concerned the condition is worse than before. This applies especially to the flat agricultural parts of this county. When our rivers are in flood so much manurial matter is washed from the soil that the pollution caused by the sewage ditches is comparatively small and practically negligible.

THE CAM VALLEY.

Saffron Walden. The sewage here has been treated chemically and the effluent polluted a tributary of the Cam. The Borough Council are now re-sewering the town, and laying down an up-to-date sewage disposal works, which it is hoped will be completed this year. The following is an account of the works as given by the Medical Officer of Health. I may add that at a recent visit to Saffron Walden I found considerable progress had been made and there seemed every probability of the works being completed within the time specified.

"A Local Government Board Inquiry with reference to the application of the Council for leave to borrow the sum of £23,000 for the purpose of carrying out the new scheme of sewerage and sewage disposal prepared by Messrs. John Taylor, Sons, and Santo Crimp, of Westminster, was held on April 19th, 1910, at the Town Hall, by A. Shelford Bidwell, Esq., and the sanction to the loan was given by the Local Government Board on May 2nd, 1910. The following is a description of the scheme:

> The greater part of the town lies high enough for the sewage to be sent by gravitation to the purification site at such a level as will admit of the necessary fall for bacterial treatment. A smaller area of the town is at too low a level to admit of gravitation to the purification works, so that pumping is necessary. In consequence two sewers will be laid in certain streets, one serving the high level and the other the low level. The existing sewers and watercourses will be used for carrying off the greater portion of the rainwater falling in the district.
>
> In order to avoid constructing the last portion of the main high level sewer at a considerable height above ground a cast iron inverted siphon has been adopted. Provision for washing out the siphon is afforded by connecting it with the pump sump built for the low level sewage.
>
> The low level sewage will be screened and pumped by means of three-throw plunger pumps, driven by gas engines, and will join the main body of sewage at the storm overflow tank. Storm overflows are provided on the sewers to limit the quantity of sewage brought to the purification works to six times the average

dry weather flow. The sewage on its arrival at the works will be passed through a detritus and storm-water separating chamber, which will limit the quantity of sewage passing through the full treatment to three times the dry weather flow Any quantity in excess of this amount will be passed through storm-water tanks. The purification works will consist of settling tanks in duplicate with a combined capacity of 70,000 gallons, two series of bacteria beds, and storm-water tanks. The first series of bacteria beds will be rectangular in shape, and the liquid will be distributed by means of four automatic travelling distributors. The second series of beds will be circular, and the liquid will be distributed by eight automatic revolving distributors. The effluent will then be led into the River Cam by means of an 18 in. effluent pipe laid through Lord Braybrooke's Audley End Estate. The sludge derived from the settling and the storm-water tanks is to be dealt with on a portion of the land specially reserved for this purpose.

Tenders were invited for the work in August, 19 contractors tendering, varying in price from £23,298 to £17,865. The tender of Mr. D. T. Jackson, of Barking, for £18,755, was accepted by the Council at a special meeting held on September 27th 1910. The contractors began work at the disposal site on November 2nd, 1910. The contract provides that the whole of the work shall be completed by November 1st 1911."

In the Saffron Walden rural district there are sewers in Rickling and Quendon and old drain sewers in Newport and Great Chesterford. The slop water from the two latter parishes is discharged into the Cam and no doubt causes some pollution, but has never given rise to any complaint. The possibility of preventing this pollution should receive the attention of the Council.

THE LEE VALLEY.

1. The River Stort. This river is being looked after by the Lee Conservancy. There are several large villages which drain directly or indirectly into the river. These include Harlow, Sheering and Roydon in the Epping rural district and Hatfield Broad Oak in the Dunmow rural district. The respective authorities are taking steps to prevent the continuance of this pollution and the County Council has not thought it necessary to interfere. There are sewage works, of a kind, at Harlow, and several schemes for Roydon have been submitted to the Local Government Board and uniformly rejected.

2. The Lower Reach of the Lee. There are many sewage works on the Essex side of the Valley, Waltham Abbey, Chingford, Woodford (West), Walthamstow and Leyton. Years ago I suggested a scheme for a main sewer for this valley to be joined by a second from the Roding valley, and a meeting was held of all the Surveyors of the interested districts to consider it. It clashed somewhat with a Lee valley scheme suggested by the Local Government Board, and was not greeted with any enthusiasm when submitted to the Authorities. I am still of opinion that the scheme would have been a great advantage to the County, but since then most of the districts have provided modern works and, as it were, contracted themselves out of the possibility of having to share in such an expense.

At the present time negotiations are in progress whereby the sewage of Walthamstow, Leyton, Edmonton, Enfield and Southgate would be taken into the London County system, and it is sincerely to be hoped that some such arrangement will be made. The Medical Officer of Health for Leyton briefly and concisely explains the present condition. He says—"The Dagenham Brook, which is really little more than a ditch, runs through the Western side of Leyton, bordering on the playing fields and Hackney Marshes on its way to join the Lea. This river carries the effluent from the Walthamstow Sewage Works through Leyton to the back of the latter's sewage works, where it is joined by the Leyton effluent, and throughout its extent suffers considerable pollution. Such pollution would of course cease were the sewage of Leyton and Walthamstow conducted by closed culverts to the London County Council's sewers."

The following extract from the report of the Medical Officer of Health for Waltham Holy Cross is interesting in many respects. It may be stated that the town of Waltham has an efficient sewage disposal works:—

"*Waltham Holy Cross Urban District Council* v. *Lea Conservancy Board.*—The public sewage system does not extend over the whole district: an owner of property had provided his own system, but his effluent which discharged into the River Lea was not considered sufficiently purified. The Lea Conservancy took proceedings against your Council, contending that you were liable (1) because you had neglected to furnish a proper system of sewerage for his particular district, or (2) you were "suffering" the sewage to pass into the river, not having taken proceedings yourselves to restrain the owner from so doing. The Justices agreed with these contentions and your Council were convicted, but the Divisional Court quashed the conviction on the ground that both the contentions were untenable.

"This case raised a question of great importance to Public Health Authorities, and is referred to at some length for that reason.

"*The Upshire Sewage Scheme* is the practical outcome of the aforementioned case. The proposed area to be dealt with consists of the West side of Upshire from the summit of Horseshoe Hill to "The Flower Pot" in Honey Lane on the South. The sewage of 45 houses, 1 Church, and 1 School, with an estimated population of 250, will be taken from the existing manhole near Warlies Farm by means of a new sewer following the road line and meeting the present main at the foot of Paternoster Hill. The size of the pipes will be sufficient to take any future extension from the East side of Upshire, the gradient being overcome by means of an ejector. Sanction for a loan for this work by the Local Government Board is now awaited.

"The scheme previously discussed will deal satisfactorily with the hamlet of Upshire, leaving High Beech and Sewardstone for future consideration, and no matter whether these two hamlets are treated as a combined drainage area or as separate systems, any scheme, to be complete, will be a costly undertaking."

THE THAMES.

The effluents from the East Ham and Barking sewage works are discharged into Barking creek near its junction with the Thames. The Ilford effluent is discharged into the Thames just below the Metropolitan outfall. The northern sewage works of the London County Council are at Barking in Essex, and the effluent is discharged at Creeksmouth. A few years ago there were constant complaints about the offensive condition of Barking creek, in the town of Barking, and there were disputes as to whether this was due to sewage backing up the creek or from effluents coming down the river. Since then the Ilford effluent has been diverted from the creek and delivered directly into the Thames and the East Ham works have been markedly improved. Possibly as a consequence these complaints have ceased.

The sewage works for Dagenham and for Rainham are on the marshes and the effluents go into the Thames. Lower down the river the bacterially treated effluents from Grays and Leigh-on-Sea are also discharged into the river, and almost at the mouth of the estuary the crude sewage of Southend is poured in on the ebb tide. At Southend a system of sewage purification is being installed, and when completed the purified effluent only will reach the Thames. This expensive work has been necessitated by the proximity of the shell fish layings, but there is no doubt that it will in other respects be a great advantage to this popular watering-place. With an abundant and pure water supply, a clean sewage-free foreshore, and its splendid situation so near to London, it is bound to continuously increase in population.

TRIBUTARIES OF THE THAMES.

The largest tributary wholly in Essex is the River Roding, which rises in the Dunmow district, flows through the Ongar district, and then successively through Loughton, Buckhurst Hill, Woodford, Wanstead, Ilford, and Barking to its point of discharge at Creeksmouth. There is undoubtedly a little pollution from each parish through which the river passes down to Chipping Ongar, where it receives the effluent from the Ongar sewage works. Here the sewage is treated upon land by intermittent downward filtration, and the river is as markedly affected now as it was before the works were constructed and all the sewage was discharged either into ditches or into a tributary of the Roding direct. Below Ongar it receives effluents from the following sewage works: Abridge, Loughton, Buckhurst Hill, Chigwell, Wanstead, and Woodford. In Barking creek it receives the Barking and East Ham effluents. The pellution increases from Ongar downwards, notwithstanding that all the sewage works are of modern type. The Wanstead works are the only ones which have given rise to complaints, and this not because of any pollution of the river but on account of effluvium drifting across the river to the Ilford Golf Links. During the last ten years Wanstead has increased from 9,200 population to 13,800 and the works are now too small. The County Council have frequently directed the attention of the Wanstead Council to this fact, and as a consequence an eminent firm of engineers has been consulted and plans prepared for an entirely new works, which are to be commenced as soon as the Local Government Board's sanction can be obtained. Sprinkler beds will be provided in a secluded corner of the farm and it is hoped that

the nuisances complained of will be abated. Only the river separates the Golf Links from the sewage works, hence the greatest care in management will always be necessary to prevent complaints. This has already been recognised by the Wanstead Council and an experienced manager has been appointed and with satisfactory results. Until the new works are completed, no management, however efficient, will entirely prevent complaints.

The condition of this river has wonderfully improved in recent years. Ten years or so ago it was little better than an open sewer, offensive from Loughton to Barking. Now no complaints of the condition of the stream are received, but analysis shews the marked effect of the varions effluents which it receives.

From Great Canfield to Ilford the river has a length of about 26 miles. In November last it was examined along its whole length, samples of water taken for analysis, and the results were as follows :—

River near source at Great Canfield ...	Impurity figure		·75
,, at Fyfield after several miles' flow through agricultural district ...	,,	,,	2·0
,, below Ongar after receiving Ongar effluent	,,	,,	4·1
,, below Abridge after receiving Abridge effluent	,,	,,	6·9
,, above Loughton. No sewage entering	,,	,,	6·0
,, below Loughton sewage works ...	,,	,,	6·1
,, below Buckhurst Hill sewage works	,,	,,	5·5
,, below Woodford sewage works ...	,,	,,	8·8
,, below Wanstead sewage works ...	,,	,,	9·1

For comparison it may be stated that on the same basis the impurity figure for the Thames at the intake of the Water Board averages 1·85, and for the Lee at Waltham Abbey 2·1. These figures may also be compared with those for the River Chelmer, which was examined and reported upon at the same time.

The standard for a 'good' sewage effluent is 10, so that below Wanstead the water in the river is only a little better than a really good sewage effluent. I do not see, at present, how much improvement can be effected since the flow of the stream is comparatively small and the amount of effluent comparatively large. Woodford is re-draining and re-making its extensive series of bacteria beds, both primary and secondary, and when this is completed I hope that the impurity figures may fall to 6 or 7. The Ongar Works do not produce so good a result as could be desired, nor do the Abridge Works. Both are comparatively small yet markedly affect the stream into which they discharge.

The River Rom. This stream rises at Stapleford Abbotts and flows through Romford, Hornchurch and Dagenham to the Thames. It receives the effluents from two Hornchurch sewage works and the Romford sewage farm. The Hornchurch Works are now being enlarged. These Works and the River are under the control of the Thames Board, and though I often visit them and have directed attention to the inefficiency of the Hornchurch Works, the County Council has not deemed it necessary to take any action.

The River Ingrebourne. This stream rises a little beyond South Weald and flows through Upminster and Rainham to the Thames. It receives effluents from several sewage works, and has been seriously polluted in the past, especially by the effluent from the Brentwood Works. The South Weald Works also added to the contamination, and upon one occasion practically crude sewage was found flowing in from the Upminster Works. Along its course, of about 16 miles, it receives effluents from Warley, Harold Wood and Rainham, besides those previously mentioned.

Brentwood. The sewage system here serves a portion of the Billericay Rural District as well as the Urban District of Brentwood, and is under the control of a Joint Board. I had frequently to report to the County Council that the effluent from the sewage farm seriously polluted the River Ingrebourne, and that other nuisances arose from defects in the system of sewers. Finally, Engineers were consulted, plans prepared and accepted by the Local Government Board, and the scheme approved is now approaching completion.

The scheme provides for a population of 12,000 on a basis of 25 gallons per head (present population served estimated at 7,500). There will be a new main outfall sewer 21 inches in diameter. The works will comprise a screening chamber, a sedimentation tank of 450,000 gallons capacity, a storm water tank and two series of circular sprinkler beds, each 83 feet in diameter and 5 feet deep. The effluent, if satisfactory, will go direct into the Ingrebourne, but if not, will be passed over a portion of the existing farm. The scheme satisfied the Local Government Board requirements. When completed this will remove the principal source of pollution of the river.

The South Weald or Brook Street Sewage Works, in the Billericay rural district, though modern, have never given very satisfactory results, and the County Council had to direct the attention of the Rural Council to the matter. Their surveyor submitted a scheme for treating a portion of the sewage on sprinkler beds, and as there could be no doubt that this would effect a great improvement the work was carried out. The effluent from this bed has been uniformly satisfactory, but an effluent recently taken from the old outfall was very impure.

In a dry summer the Ingrebourne contains little but the sewage effluents, and in ordinary seasons the amount of water in it is comparatively small. It is more a brook than a river. Its condition has been bad in the past, but I am hoping that it will be very greatly improved when the Brentwood Works are completed Notwithstanding its condition I never receive any complaints about it now. Some years ago there were complaints from Brook Street, but after this part was sewered the complaints ceased.

THE CROUCH VALLEY.

This river flows almost directly from west to east rising beyond Billericay flowing through Wickford, at the boundary of which parish it becomes tidal, to Burnham and the open sea. The river Roach enters it below Burnham.

At present it is polluted by the crude sewage of Billericay. Referring to this subject the Medical Officer of Health reports as follows :—"The Local Government Board held an inquiry during the year regarding the system of drainage required for

Billericay and that part of Mountnessing adjacent. Some difficulty and delay has been experienced in obtaining the site for the outfall works, but that I understand is now in a fair way to be overcome and with the Local Government Board's consent, which has now been granted, it is hoped that this long delayed and much discussed sewerage scheme will evolve from the region of talk and discussion and assume a more real form during the coming year. The urgency for this scheme grows greater every year. As fresh houses are being constantly put up the amount of pollution of the various watercourses becomes ever the greater. Four large sewers and many smaller ones still empty themselves, without any attempt at purification, into the watercourse."

The County Council on more than one occasion has pointed out to the Billericay Council the necessity for taking immediate action and it is hoped that the works will be commenced forthwith.

Wickford is now sewered and the disposal works have been improved. Complaints arose about smells when the sewage was being pumped. The condition of the river here has very greatly improved since the works were constructed. In dry summers the condition used to be horrible. The Burnham sewage is treated on bacterial lines and the effluent reaches the Crouch some three or four miles above the oyster layings.

The river Roach is affected by the sewage of Rochford. Rayleigh is increasing in population and sewage disposal works will soon be necessary here as crude sewage is being poured into ditches which ultimately reaches the Roach. At Rochford there is a small sewage works which, beyond keeping back most of the suspended matter, is of very little service. Probably if there were a continuous flow to the sea no nuisance would arise, but the water is backed up by gates at a mill below and when let off a good deal of black mud is carried forward and may reach the oyster layings below. This matter is receiving the attention of the Rochford Rural District Council to whom I have recently submitted a report on the subject.

THE BLACKWATER VALLEY.

If we assume that the tidal river is the Blackwater and that the Chelmer terminates at the Heybridge Basin Lock then the whole of central Essex drains into the Chelmer and its tributaries.

The Blackwater is really only the estuary of a series of streams which drains 434 square miles out of the 1,648 which Essex contains. The chief streams join to form the Chelmer and this near Maldon is joined by the Pant, which is sometimes called the Blackwater, and at Maldon these join the tidal Blackwater. Between Chelmsford and Maldon the river is canalized forming the Chelmer and Blackwater navigation. A description of all these streams will be found in my report on the Water Supplies of Essex, 1901. The entire length of the Chelmer is about 34 miles. It rises south of Debden, flows past Thaxted where it becomes seriously polluted, through Tilty to Dunmow where it again receives crude sewage, thence through the Walthams to Chelmsford. The effluent from the Chelmsford Sewage Farm, which rarely comes up to our reasonable standard, enters the Navigation about two miles below the town. The tributaries to this portion of the river receive very little sewage, but the Cann receives the sewage effluent from Writtle about 1½ miles above Chelmsford. The following table from analyses made in November shows the condition of the river at various points :—

	Impurity Figure.
The Chelmer above Thaxted	2.3
,, below ,, ...	18·0
,, below Dunmow	4.4
,, at Great Waltham	1·9
,, at Little Waltham	1·4
,, at Broomfield (Chelmsford boundary) ...	1·4
,, Chelmsford, opposite swimming bath ...	2·0
,, Navigation, above sewage works ...	3·0
,, ,, below ,, ...	4·4

Dunmow and Thaxted. Both these towns are in the Dunmow Rural District and both discharge all their crude sewage into ditches which after a short flow join the Chelmer. Many communications have passed between the County Council and the Dunmow Council and at length the latter body has had a scheme prepared for Dunmow which seems to me to be adequate, and has promised to proceed with it without delay. No such promise has been made with regard to Thaxted. During the summer the ditch which receives the sewage, and which runs alongside a high road was a mass of seething filth and for hundreds of yards the river bed was covered with sewage fungus.

Broomfield. This village which is in the Chelmsford Rural District will be sewered in the near future, plans having already been prepared and land purchased. Bacterial treatment will be adopted, but I am afraid that when all the effluent from the village enters the Chelmer it will appreciably affect the degree of impurity.

The river Pant rises near Debden, flows through Great Bardfield, Bocking, Coggeshall to Feering, joining the Brain at Witham, and the Chelmer near Maldon. The Brain is shorter than the Pant and runs nearly parallel to it until the latter turns abruptly to the south at Coggeshall. The Pant is polluted in every parish, but especially at Bocking and Coggeshall, both of which towns discharge crude sewage into it. The Brain receives the effluent from the Braintree sewage works. These works were formally opened on September 22nd. They include three sedimentation tanks capable of holding about a day's flow, three primary and three secondary sprinkler beds, and a storm water tank. The storm water will be passed over land before being allowed to enter the river. The works seem admirably designed and will put an end to the serious pollution of the river, which previously occurred here.

At Kelvedon and Hatfield Peverel, in the Braintree Rural District, sewage is discharged into ditches and ultimately reaches the river. The Council has this subject under consideration.

At Witham the sewage is treated on a small farm and during dry weather the land is efficient. After heavy rains a good deal of unpurified sewage enters the river. The attention of the Urban Council has been directed to this.

The Maldon sewage enters the tidal estuary of the Blackwater, and Heybridge (in the Maldon Rural District) discharges effluent into a tidal creek. Neither gives rise to any complaints, but cases of typhoid fever have occurred due to the eating of shell fish taken from near the sewer outfalls.

Tollesbury is in the Blackwater valley. Its sewage is bacterially treated, and the effluent is practically discharged into the open sea. There are no oyster layings within a mile of the outlet from the works, and though the purification effected is not great, I think the effluent is not a source of danger to the shell fish.

THE COLNE VALLEY.

This includes an area of 407 square miles. The river rises near Bumpstead and Birdbrook and passes E.S.E. by Yeldham, Hedingham, and Halstead to Colchester, where it becomes tidal and enters the sea between Mersea Island and St. Osyth. It receives short tributaries along its whole course, but none is of any importance. Although I have examined the river at many places, and on many occasions, I have never made a systematic survey, taking samples at various points from its source to Colchester.

In the Halstead district it receives sewage or sewage effluent at many places. The worst sources of pollution are at Earls Colne in the Rural District and at Halstead in the Urban District. These are the only places from which any complaints have been received and both have received a considerable amount of attention from the County Council.

Halstead. The sewage works here have not given satisfactory results for some time and several complaints have been received about the condition of the river. These, from my own observations, proved well founded and the County Council has been pressing the Urban Council to effect more complete purification. Until about 2 years ago the whole of the sewage was submitted to land treatment, but the area not being sufficiently large the effluent was not satisfactory. The Council therefore decided to put down some Dibden's slate beds and gravel filters and to do the whole out of the rates, spreading the work and expense over a period of 3 or 4 years. The Medical Officer of Health says "During the past year considerable progress has been made with the new system ; two further slate beds have been installed with the necessary filter be ls, also small filters to intercept the passage of solids on to the large filters ; this means that two-thirds of the scheme has now been carried out and there is a good prospect of its completion during 1911." I have frequently visited these works and recently met the Surveyor and Medical Officer there and pointed out that a good deal of the trouble arose from the intermittent discharge of highly coloured tannery effluent and expressed the opinion that if this waste liquor were discharged continuously in small quantities the bacteria beds would be much more likely to deal with it effectively. The Surveyor undertook to get this done and I hope at my next visit to find matters considerably improved. Gravel is used for the bacteria beds. Coke or breeze would have been much better.

Earls Colne. This large village is in the Halstead Rural District. Nearly all the sewage is discharged directly into the river, but as there is always a good flow of water the effect is not very marked. Some years ago the attention of the Rural Council was directed to this pollution and an Engineer was consulted who prepared a scheme which would have cost £10,000 to carry out. I met a Committee there and pointed out that the village also wanted a water supply and I suggested that this should be carried out first, and some simpler and less expensive means

of sewering and of sewage disposal devised. Unfortunately the subject then dropped and though the Medical Officer of Health annually directs attention to the needs of the parish nothing has been done.

Colchester Sewage Works I have not seen for a long time, and the discharge being into a tidal river the County Council has no jurisdiction. Wivenhoe has no system of sewage treatment and its crude sewage goes directly into the river. The same applies to Rowhedge on the opposite bank. Brightlingsea treats its sewage with alumino-ferric and collects the precipitate in deep tanks with conical bottoms. The effluent is discharged during the ebb tide. At St. Osyth the slop water is also treated with alumino-ferric. At the towns on the coast, Clacton, Frinton, Walton and Harwich, the sewage is discharged into the sea.

THE STOUR VALLEY.

The River Stour separates Suffolk from Essex draining a long narrow area in the latter county. Its tributaries in Essex are very short and insignificant. It is tidal for some distance above Manningtree. It receives sewage at Dedham and Manningtree and possibly at other places. Only one complaint has ever been received and that had reference to the effluent from the sewage works at Sudbury (Suffolk). This was found to be very unsatisfactory, and the attention of the authority was called to it. When investigating this it was found that the parish from which the complaint was received was also polluting the stream. The Rural Council were made acquainted with the fact.

The above account indicates that although much has been done to improve the condition of our Essex Rivers that much yet remains to be done. In several instances the County Council has proceeded so far as to threaten legal proceedings, but on no occasion have such proceedings been necessary, the defaulting local authorities having either proceeded to do all that was required or having shown that no scheme had been devised whereby the work could be done at a reasonable cost.

The Thames and Lee Authorities have also been active and have not hesitated to threaten and even take legal proceedings. Recently proceedings were threatened against the Rochford Rural District Council with reference to South Benfleet. The pollution there is infinitesimal and the oxygenation of the creek water is barely affected. Small tanks have since been put down to keep back suspended matter and to treat the sewage with alumino-ferric. If these tanks are properly attended to there should be no cause for complaint. Assuming however that this part of the county developes, as it shows signs of doing, several parishes should be combined for the purpose of providing a single disposal work.

HOUSING OF THE WORKING CLASSES ACTS.

RURAL DISTRICTS.

During the year the name of the "Sanitary Committee" of the County Council was changed to "The Public Health and Housing Committee" and all duties under the various Housing Acts were delegated to the Committee. It comprises 23 members representing all parts of the County. Copies of "Representations" made under the

Acts in rural districts are now sent to me, but I doubt whether all are received. Copies of Closing Orders appear to be sent to the Clerk or to me indiscriminately ; it would be far more convenient if they had to be sent to me as the Medical Officer, in the same way as the " Representations."

The following notices have been received during the year :—

	Representations of houses unfit for human habitation.	Closing Orders.	Demolition Orders.
Belchamp	11	—	—
Billericay	1	—	—
Braintree	45	31	—
Bumpstead	—	—	—
Chelmsford	18	3	—
Dunmow	—	—	—
Epping	—	—	—
Halstead	13	13	—
Lexden and Winstree	—	—	—
Maldon	12	—	—
Ongar	—	—	—
Orsett	11	11	—
Rochford	—	—	—
Romford	—	—	—
Saffron Walden	—	—	—
Stansted	—	—	—
Tendring	7	7	—

Judging from this table it might be concluded that there was very great activity in certain districts and absolute apathy in others. This conclusion would probably be erroneous. For example Rochford appears to have done nothing yet an Inspector is temporarily employed who is making an examination of the whole of the cottages in the district. Whether he is reporting at intervals or will submit a report when the inspection is completed, I cannot say. At the end of the present year if the Medical Officers' reports do not contain full information I shall have to make a special request under The Housing and Town Planning Act, Sec. 69, and devise a form for filling in. The following abstracts shew that copies of all " Representations " are not sent to me.

Belchamp. The Medical Officer of Health says—Closing Orders were made in 11 cases, two houses were demolished and nine placed in habitable repair. The housing accommodation is generally adequate.

Billericay. A large number of bungalows have been erected in different parts of this district. The Rural District Council appear to have circularized the Parish councils asking whether more cottages were required in their respective parishes. Great Burstead, Ramsden Bellhouse and Mountnessing replied in the affirmative but the last named afterwards withdrew its affirmation as private enterprise seemed likely to meet the demand. The Medical Officer of Health says there is not a parish in which cottages are not wanted, and that the demand for cottages increases yearly. Steps are being taken to provide cottages in the three parishes above mentioned. No inspection of the district appears to have been made to ascertain where the requirement is most urgent.

Braintree. A considerable number of dilapidated cottages have been closed. In some cases it was impossible to repair so as to make them habitable. The Medical Officer of Health says—"The need for labourer's cottages is one that is felt in most agricultural districts, and this district is no exception to the rule." In High Garrett the housing question is more acute than in any other parish.

Bumpstead. No house has been represented as unfit for habitation. "There is no marked evidence of deficiency in housing accommodation."

Chelmsford. A good start was made in this district by a special inspection of the parishes of Ingatestone and Fryerning, and the results formed the subject of a special report. The difficulties encountered however have been so great that further inspection has been limited to houses selected by me as Medical Officer of Health. A special Committee has been appointed to consider the whole subject. Owners served with notices threatened to evict their tenants and close the cottages and it is now obvious that little can be done with the old cottages until new ones are provided. At Ingatestone private enterprise has undertaken the erection of 20 cottages and the Committee above referred to is to consider the desirability of providing cottages in three or four other parishes.

Dunmow. A house to house inspection is now in progress. Two have been closed and 47 placed in habitable repair. There is a want of cottages in Lindsell and the Clerk wrote to each landowner in the parish. Only one responded and he promised to erect four cottages. These have not yet been commenced.

Epping. Although no returns have been received from this district something appears to have been done, since 47 houses are reported to have been made habitable, one closed, and two demolished. The Medical Officer of Health says:—"The provision of better houses, especially for the lower grade of the working classes, is one of the most important requirements of the district."

Halstead. The Medical Officer of Health for No. 1 District says there does not appear to be any pressing need for new houses. Many houses are damp. A commencement has been made with the inspection of the district and a number of cottages have been put in habitable repair.

Lexden and Winstree. A new Inspector has been appointed and the Medical Officer of Health thinks it is useless discussing the provision of new cottages until the real need of each parish is ascertained. There are many old houses in habitation, which apparently would be vacated were better houses obtainable.

Maldon. The Council in this district has not talked much about the subject but has undertaken the erection of six cottages in Tolleshunt D'Arcy at an estimated cost of £1,200. The Council erected six cottages in Bradwell a few years ago. (The cottages at D'Arcy are nearing completion—June, 1911.) All the cottages in the district shewing signs of being unsatisfactory have been examined.

Thirty-eight houses were formally reported upon and 19 closing orders made. Orders for the demolition of seven cottages were served.

As this is one of the most thinly populated and poorest districts in the County, the action of the Council is worthy of commendation and should be regarded as an example by other and more favourably situated districts.

Ongar. Eighty houses were inspected but no orders have been made. The Medical Officer of Health says: "The Council's requirements are being met by the landlords in a sympathetic spirit; time is required in every case for carrying out the suggested remedies, and in all cases this is being given, the Council considers too great a hurry undesirable in all the cases dealt with."

Orsett. Eleven cottages in Chadwell St. Mary were found to be unfit for human habitation; these were closed and are undergoing extensive repairs. There is no reference to any special inspection.

Rochford. In this district the housing is said to be fairly satisfactory, but in many of the remote parts the cottages are in a poor state of repair. A special Inspector was appointed in September to examine the district. The particulars given for three parishes shew that 326 houses had been inspected and 125 reported defective. 50 notices appear to have been served and 2 houses closed. Owners are said to prefer executing repairs to having their houses closed.

Romford. The housing of the working classes is fairly good except in a few localities. No special work appears to have been done under the Housing Acts.

Saffron Walden. There have been no proposals in this district for building houses by the Rural District Council, but more cottages with three bedrooms are wanted in Great Chesterford, Newport, Hempstead, Great Sampford and Hadstock. The Inspector has been appointed to carry out the inspections under the Housing and Town Planning Act. One house in Wimbish and three in Newport have been declared unfit for habitation, but no orders have been issued as the owners have agreed to close them.

Stansted. The whole question of housing has received very careful consideration, and a "commencement has been made with regard to the inspection of cottages."

Tendring. "The inspection under the Housing Acts has been begun, and if I represented every house that might be considered unfit for habitation and got closing orders, we should soon be without sufficient houses for the people to live in." Certain villages on the Suffolk border provide houses for men working in Suffolk and force people working in these villages to go elsewhere to live.

It is quite obvious from these reports that there is a lack of good cottage accommodation in nearly every rural district. The evils consequent upon such want are both moral and physical, and I am inclined to think the demoralising effect is the more serious. During recent investigations statements have been made to me, and which I have been able to verify, of gross immorality due to the deficient bedroom accommodation, in fact, many of the statements I should not dare to put into print. Some of our midwives could tales unfold which would shock the most callous opponents to improvement in rural housing. The effect upon health cannot, however, be ignored. Deficiency of air space not only lowers the vitality but greatly increases the number of cases of infectious disease with which we have to deal. There are really very few people who deny that better housing is required, but there are many who object to the houses being provided by the Sanitary Authorities, and who say the duty should be imposed upon the owners of the land. The landowners object because they cannot get a sufficient return for the money expended. One of the

most influential landowners in the County objected to erect any cottages in a village because he alleged that there were already as many labourers in the parish as the land would support.

No serious effort is being made anywhere to provide cottages, save in the Maldon rural district, but it is possible that the President of the Local Government Board's expression of opinion as to how these cottages are to be made to pay may have some weight and may come to be acted upon in the near future. At a recent meeting held in Romford (opening of the Gidea Park Estate), The Rt. Honourable John Burns said, "The rural housing problem would easily be solved if the farmers would pay their men 1/- per week more in wages and the labourers would spend 1/- a week less in beer." This extra 2/- would more than pay the difference in the rents. It must not be forgotton, however, that many of our old rural cottages have got fair sized gardens attached, often containing fruit trees which in a good season may pay the rent. The garden finds the man employment in his spare time and enables him to teach his children a useful art. New cottages, on the other hand, are generally erected in rows, with very small gardens liable to the depredations of the fowls, etc., kept by neighbours. Lack of interesting employment for leisure hours is almost as potent a cause of moral deterioration as the living in overcrowded cottages, and allotments at a distance can never take the place of the garden attached to or surrounding one's own cottage as a source of pleasant and remunerative employment.

I am strongly of opinion that if the Rural Authorities let it be known that they intended to provide cottages where such are needed, that in the majority of cases private enterprise would step in promptly and provide them.

Some of the efforts now being made to entice people into the country are simply accentuating the difficulties arising from the lack of cottages. At Upminster and Romford garden suburbs are being erected, consisting of villas with gardens which will bring employment for jobbing gardeners, labourers, etc., but no provision is being made for housing such men.

In the rural districts of Rochford, Orsett, Billericay and Chelmsford, an enormous number of cottages and bungalows have been erected during the last 10 years. They are dotted about on recently developed building estates without properly-made roads, without sewers and often without a satisfactory water supply. Nearly all these are completely detached and some few are pleasing to the eye. A large number, however, are blots upon the landscape and stamp the neighbourhood as being one to be avoided. Most seem to have half to one acre of ground attached, some have much more, and usually these are poultry farms. So far as I can learn these places are not built by or occupied by natives of the district, but by people from East London who have been attracted by the plausible advertisements of land speculators and by glowing accounts of the possibilities of making a livelihood out of a few acres of ground, and by romances regarding the pleasures of a country life.

At Mayland, in the Maldon rural district, Mr. Fels has developed a large estate, dividing it into small holdings and providing small farmhouses and assisting in working it on a co-operative basis. If successful, the owner does not trumpet abroad the fact, but I am afraid it is only a qualified success.

At Tiptree in the same Rural District Messrs. Wilkin and Sons, Jam Manufacturers, have provided a considerable number of cottages for their men, and offer them on terms which enable the tenants to become the freeholder in a reasonable number of years. They have very kindly furnished me with the following particulars concerning the last three pairs erected.

	£ s. d.
Total cost of 3 pairs of cottages including water supply, drainage, plans, oversight, etc.	962 14 11
Land, say	60 0 0
	£1022 14 11

or £170 9s. 2d. each.

Size of Rooms :—	ft. in.	ft. in.
Parlour	13 3	× 10 0
Kitchen	12 0	× 10 0
Scullery	8 6	× 5 6
Larder	5 6	× 3 3
1st Bedroom	13 6	× 10 3
2nd „	12 0	× 10 0
3rd „	8 6	× 5 6

Tool house and pail closet outside. Cottages entirely of brick and covered with slates.

The estimated return on capital is as follows :—

Rent, 3/6 per week ...		£9 2 0	per year
Rates ...	£1 14 5		
Repairs & depreciation	0 15 0		
		2 9 5	
		£6 12 7	
Nett yield on £170 9 2 ...		£3 18 0 %	

This firm is laying out more ground for the erection of similar cottages. Here we have a prosperous and contented community the masters doing the best they can for their employees and the employees doing their best for their employers. A similar condition appears to obtain at Earls Colne, where Mr. Reuben Hunt has provided his workpeople with excellent cottages.

Cottages must be built to let at 3/6 per week, and yet leave a very small burden upon the rates. I think this may be done and when it is done, then and not till then can any real improvement be effected by closing the wretched old places which we are, at present, compelled to allow to be occupied.

Too much attention must not be paid to the number of closing orders made as a sign of efficient sanitary administration, but rather to the number of houses re-built or otherwise placed in habitable repair, and to the number of new cottages provided. It is a comparatively simple matter to serve closing orders and their indiscriminate service may really do more harm than good, since without the provision of new cottages, local overcrowding must be increased or the people be driven into the workhouse or out of the neighbourhood.

A point which in my opinion will accentuate the want of houses of a particular class is not mentioned in any report. I refer to the old-age pensioners. Many old people left the workhouses when they became entitled to the pension and these are now being housed somewhere, and as time goes on the majority of these old people who would previously have drifted to the workhouses will remain in their homes. There will therefore be a greater demand for small houses at a very low rental, which could best be met by the provision of 3 or 4 roomed one-storied cottages. These, no doubt, could be erected in pairs at a very low rate, and would be useful not only for the aged but also for newly-married couples, who could move into the larger cottages later as the families increased.

What is now wanted is a supply of these small cottages and of cottages with three bedrooms. There are plenty of cottages with two bedrooms, though many of these are sadly lacking in conveniences such as coppers and sinks which add considerably to the amenities of domestic life. If sites are selected near water mains the cost will be considerably reduced and if there are sewers near a further saving would in many cases be effected.

To ascertain where cottages are most urgently needed is a difficult task. The census returns for the separate parishes, when published, will give valuable indications. Parish Councils, if in sympathy with the movement, can give or obtain useful information, but usually it will depend upon the results of the investigations of the Medical Officer of Health and Sanitary Inspector. I have found that midwives, nurses, and ministers, and employers of labour are always worth consulting and often give information or hints, which, if followed up, lead to results of value.

There may be sufficient cottages in a parish for all the labourers in the parish, yet there may be a demand for cottages, probably by men engaged in work in a neighbouring town. It is in the interest of the community to encourage this tendency on the part of work people. If not too far from their work, residence in the country in a cottage with a nice garden is preferable for many reasons besides that of health The rateable value of the district is increased, more money is spent in the village and the community benefits as well as the individual.

I have long been firmly of opinion that public money cannot be better invested than in providing good cottages for working people, and increased experience only tends to confirm this conclusion.

URBAN DISTRICTS.

The Summary of the Reports refers to each of the districts separately. Here it need only be stated that in a few districts houses are said to have been provided in excess of the requirements, in a great many the accommodation is said to be adequate and in a few more accommodation is required.

At Braintree there is a demand for cottages, but as 46 cottages are about to be erected this will probably satisfy the demand.

At Chelmsford there is a sad lack of houses for the working classes. When a cottage is known to be likely to be let I am informed that there are always 20 or 30 applicants for it. Moreover certain engineering works are developing and will employ many more men, but how these are to be housed no one knows. They are flocking

into the adjacent rural district and offering to pay far higher rents than the present tenants and causing great hardship. There is no doubt that cottages are more urgently required here than in any other district in the County.

In Epping there are many old rotten cottages beyond repair, but there are no houses for the present tenants to move into.

In Maldon there is a serious dearth of cottages letting below 7s. a week, and the accommodation does not keep pace with the increasing population.

At Southend the Corporation owns 40 cottages letting at 7s. 5d. and 8s. 6d. per week, and a special committee has been appointed to consider the provision of further accommodation.

In Witham houses are reported to be occupied which ought to be condemned, but there are no other cheap cottages available.

Double tenements are becoming more common in the County, especially at Leyton. Some have recently been erected at Chelmsford. In the smaller towns there should be no necessity for thus overcrowding houses on space.

In the rapidly developing areas around London the erection of tenement houses may lead to the formation of slums. Too great care cannot be exercised to prevent anything of this kind occurring. The health of the future inhabitants of these towns will depend greatly upon the efficiency of the present sanitary administration, and this should always be borne in mind as development proceeds. Open spaces will be easier to acquire now than in future years and it is gratifying to know that most of the Councils of these urban areas, if not all, are quite alive to the fact and are providing accordingly. In certain localities I have observed a serious deterioration. Very nice cottages which a few years ago only sheltered one family each are now let to two families, and look dirty and neglected. Either the tenants are of a much lower class, or the owners are becoming more negligent, or possibly both factors are at work. If so, such localities will soon be "slum" areas.

ADMINISTRATION OF THE MIDWIVES ACT.

The powers of the County Council have been delegated to the Public Health and Housing Committee. When the Act came in force it received special consideration and the Committee finally decided—

(1) That no duties should be delegated to the Local Authorites.

(2) That the County Medical Officer of Health should undertake all the duties of inspection, etc., under the Act.

Every woman was visited at her home and a number of details noted and instructions given. After an interval of six months they were again visited and it was then found that the great majority was complying with all reasonable requirements. There were many however who were not satisfactory and a list of these was made. A little later the lady lecturer on hygiene who held a certificate in Midwifery was requested to visit these unsatisfactory midwives and impart to them as much instruction as time permitted. She paid several visits and no doubt did a certain amount of good, but her visits were sometimes resented, it being alleged that as she had had no practical experience beyond that received during her training, she

could not know as much as some of the women she was teaching and who had, in some instances, attended hundreds of cases. Her reports were considered too pessimistic and her visits were discontinued.

The midwives who appear to be thoroughly competent and qualified by examination are visited once a year, in all cases at their homes, and the others are visited more frequently and as occasion requires. Many of the original "Gamps" have ceased to practise and some have died, so that the number of women of this type now on the roll is very small. A number of women also are on the register who only act as monthly nurses and these all give an undertaking not to act as a midwife without giving due notice. These consequently are not visited.

At the end of 1910 there were 327 women on the roll and of these 235 were qualified by examination. No less than 72 reside in large nursing homes at Leyton, Walthamstow, Plaistow and East Ham; 47 of those registered act only as monthly nurses.

The notices received during the year were as under:—

Of sending for medical help	255
Of still births	71
Of the death of mother	4
Of the death of child	15
Total	345

When a case of puerperal fever occurs and a midwife has been in attendance the Medical Officer of Health communicates with me and an investigation is made. Typed instructions are left with the midwife and the Medical Officer of Health always obliges me by certifying when the clothing, etc., has been properly disinfected.

During last year 38 cases of puerperal fever were notified in the County, and only four of these had been attended by midwives.

The number of births registered in the County was 24,077 and of these 9,488 were attended by midwives. We have therefore

Amongst midwives	...	4 cases to	9488	births or	1 to 2372
„ others	...	34 „	14589	„	1 to 429

This is rather a remarkable result.

The complaints received about midwives are very few in number; only six reached me during the year. One had reference to a midwife who had been attending a woman who died of puerperal fever. Upon investigation it was found that she attended only as a nurse, a medical man having been engaged and having attended the patient throughout. The midwife had a suppurating sore on her finger, and it was suspected that this in some way infected the patient. All the facts were laid before the Central Midwives Board and they decided that no action could be taken as the medical man attending was entirely responsible.* Since this death the midwife has

*The Central Midwives Board held "Where a midwife acts as a monthly nurse under the direction of a qualified medical practitioner the Board considers that the doctor is the responsible person, and, if he agrees to work with a dirty or incompetent nurse, the blame, if anything goes wrong, must rest with him."

not attended a single confinement, all her patients cancelled their engagements and no one has engaged her since. Another midwife was charged with not calling in medical help sufficiently early. All the facts were laid before the Central Midwives Board and a reprimand given. The woman was not entirely to blame. One midwife was prosecuted for unlawfully causing a child to be buried, such child not being still-born. She was fined 40/- and costs. She erred in ignorance, and was ill at the time. She died shortly afterwards. The other cases were trivial in character and necessitated nothing more than a kindly caution or a little advice for future guidance. The women who are not registered and who are alleged to be acting as midwives give us far more trouble. No less than 129 such women have been reported. Formal warnings were sent to all and the great majority replied to my letter saying that they had erred in ignorance and would take no further cases. A few said they had only attended in an emergency and without previous notice and were anxious to know what they should do in such cases. I have been careful to make it clear that they are perfectly justified in helping in an emergency. It would be a serious matter in some of our thinly populated areas if a woman could not be obtained in an emergency. Lives might be sacrificed before the advent of the doctor and the working of the Act brought into disrepute. Notwithstanding the warnings 24 women were reported a second time. Amongst these I found one whose name had been erased from the roll some years ago for negligence, etc., and five who had applied for registration but had applied too late. One woman has since qualified and obtained a certificate and three others have gone in for proper training. All efforts to see some of the remainder have failed but with one exception registered letters have been delivered. In the exception the registered letter was returned marked "Gone, left no address" yet shortly afterwards I heard of her attending another case.

There are only three or four now known to me who appear to be infringing the law, but I have not yet been able to lay before the Clerk to the County Council facts which in his opinion would enable us to prove that they practised "habitually and for gain." About one women there can be no doubt about her acting habitually, but her patients say they pay her nothing. There is apparently collusion between the unqualified midwife and her patients and some modification of the act is desirable to meet such cases.

During the year it was alleged that there was a scarcity of midwives in the rural districts and as the County Council had granted scholarships for the training of women on condition that they practised in the county, I visited those who had been trained and who were acting as midwives. I also ascertained the extent of the practise of the average midwife in strictly rural Essex. I found that many women thought they had done well if they had eight cases in a year, and some of the County trained women had not had a single case. These women are becoming monthly nurses. The Council decided to grant no more such scholarships.

Midwives can only be provided in rural areas by local associations who guarantee the women a living wage. Fortunately these associations are increasing in number, and the Essex County Cottage Nursing and Midwifery Association has established 37 such centres and probably in the future more of the nursing branches will engage the

services of a midwife. These Associations generally make an arrangement with a medical man to attend in emergencies and guarantee his fees. Latterly this question of fees has not been markedly in evidence. I find in most rural districts the medical men help the midwives and apparently raise no question about fees. In a few districts the Board of Guardians have accepted some responsibility, but, I believe, in many districts no arrangement of any kind has been made. All are waiting for the new Midwifery Bill to settle this question and to definitely fix the responsibility upon some authority.

Early this year the County issued a list of all the certified midwives who had registered during 1910 and copies were sent to each person whose name was on the roll, to each Medical Officer of Health, and each Clerk to the Guardians. This has enabled these officials to send me the names of women whom they believed to be practising and whose names did not appear upon the list.

ADMINISTRATION OF THE SALE OF FOODS AND DRUGS ACTS, 1875 to 1907.

The Administration of these Acts is in the hands of the Metropolitan District Committee so far as relates to that part of the County which is within the Metropolitan Police District, and of the Parliamentary Committee for the remainder of the County, and the Public Analyst, Dr. Bernard Dyer, reports quarterly to each Committee. There is one Inspector for the Metropolitan district and two for the remainder of the County. As far as I am aware Colchester is the only Borough or Urban District having its own Analyst, but in certain Urban Districts the Sanitary Inspectors are empowered to take samples.

When any question arises with reference to an adulteration which may be injurious to health I am consulted, but not otherwise. Twice during the year such questions have arisen. In the first case Dr. Dyer had found 2½ per cent. of chloroform in certain sweets and the Clerk wished to know whether a prosecution was likely to be successful. I went fully into the matter with the Clerk and he finally came to the conclusion that we should fail to prove that any injury to health would ensue from the moderate use of such lozenges. In the second case a sample of butter was found to contain 1 per cent. of boracic acid. It was decided to prosecute and I gave evidence on behalf of the County and a conviction was obtained. I did not object *in toto* to the use of boracic acid but merely to its being used in unnecessary amount.

Since I was consulted about the chloroform in sweets, Dr. Clark of the University of Glasgow, has published in the *Lancet* (Jan. 21st, 1911) an article on "The influence of Chloroform when repeatedly administered in Small Doses." The experiments were made with rabbits and the Chloroform was given in various ways, one being by the stomach. The conclusions at which he arrived were as under :–

"1. Chloroform repeatedly administered by the respiratory passages, subcutaneously, and by the stomach in small doses rapidly kills rabbits.

2. The liver shows a degeneration of the cells sometimes so marked that the whole centre of the lobule is broken down into debris. The cells in the centre of the lobule are early affected, those further out later. Fat is always present generally in large quantities.

3. The kidney suffers to some extent, but relatively more when the chloroform is inhaled than when injected or given by the stomach. Fat is occasionally found in degenerated cells.

4. The spleen shows intense congestion, the sinuses being packed with red blood corpuscles. Along with the red corpuscles an orange-coloured pigment is generally present which reacts to the stain for iron. A large number of very large phagocytes are present in most cases. The average weight of the spleen was 0·46 gramme heavier than the controls when chloroform was inhaled, and 0·59 gramme and 0·17 gramme heavier when injected and when given by the stomach respectively.

5. Degenerative changes were observed in the cardiac muscle. Fat was not observed in any of hearts examined.

He further remarks:—

"In connexion with the administration by the stomach, it is of interest to note that the amount of chloroform given in each administration was comparable with the quantity described by Sir James Crichton-Browne (2) as being present in one linseed, liquorice, and chlorodyne lozenge. The average weight of a full-grown rabbit is about 2 kilogrammes, while 70 kilogrammes represent the weight of a full-grown man. Thus 30 to 40 of these lozenges per diem in a man gives the same proportion of chloroform to body weight as in the experiments, and correspondingly less in a woman or child. Many rabbits are very susceptible to the action of chloroform, but even in the one example where the animal lived for a long while the liver changes were of a very striking description. The lesions found in rabbits closely resemble those reported in fatal human cases of chloroform poisoning by Stiles and McDonald (15) and others."

From the above results it appears certain that the use of chloroform in sweets is fraught with danger to health and that an attempt should be made to stop the manufacture and sale of such confectionery. Whether the continued use of small quantities would induce a 'habit' or a 'craving for more' does not seem to have been noticed. Probably such is not the case as one never hears of 'chloroform maniacs' whilst 'morphia maniacs' and 'cocaine maniacs' are far from uncommon.

If I am again consulted on this matter I shall certainly say that in my opinion the continued giving of small doses of Chloroform is likely to be injurious to health.

The Inspectors under the Food and Drugs Acts are also Inspectors of Weights and Measures. Their names and addresses are as under :—

Mr. Adam Ward, Colchester, Inspector for the Northern District.
Mr. Herbert C. Card, Brentwood ,, Southern ,,
Mr. D. G. Mackirdy, Stratford, E. ,, the Metropolitan Area.

Dr. Dyer has very kindly prepared for me the following report on the samples of Food and Drugs examined by him during the year :—

17, Great Tower Street,
London, E.C.,
17th January, 1911.

County of Essex.

SALE OF FOOD AND DRUGS ACT.

Summary Report on samples analysed during the twelve months ending 30th November, 1910.

During the twelve months ending on the 30th November, 1910, 1,733 samples were submitted to the Public Analyst for the County under the Sale of Food and Drugs Act. Of these, 121, or just under 7 per cent., were adulterated or deficient as compared with legal requirements.

The samples are summarised in the following tables:—

	Samples Analysed.	Samples Adulterated.	Percentage of adulteration. 1909-1910.
Northern District of the County ...	423	10	2·36
Southern District of the County ...	402	36	8·96
Metropolitan Police District of the County	736	53	7·20
Chingford Urban District Council ...	7	2	
Clacton Urban District Council ...	3	2	
Walthamstow Urban District Council...	150	16	12·79
Wanstead Urban District Council ...	6	1	
Woodford Urban District Council ...	6	1	
	1,733	121	6·98

	Samples Analysed.	Samples Adulterated.
Almonds, Ground	1	—
Baking Powder	9	—
Bread	1	—
Butter	610	35
Butter, milk-blended	20	—
Cheese	40	—
Cocoa	7	—
Coffee	29	1
Coffee and Chicory	2	—
Cream	3	—
Dripping	1	—
Drugs:—		
Camphorated Oil	7	—
Citric Acid	1	—
Medicine dispensed from prescription	1	1
Tartaric Acid	3	—

	Samples Analysed.	Samples Adulterated.
Ginger, Ground	2	—
Golden Syrup	1	—
Jam	1	—
Lard	74	—
Lard Compound	2	1
Lard Substitute	2	0
Margarine	35	—
Marmalade	2	—
Milk	795	76
Milk, Skimmed and Separated	22	6
Olive Oil...	7	—
Pepper	12	—
Pickles	1	—
Potted Meat	1	—
Rice	10	—
Rice, Ground	11	—
Semolina	1	—
Sugar	1	—
Sweets	1	1
Tea	10	—
Beer	4	—
Whisky	3	—
	1,733	121

It will be seen that, with four exceptions, the unsatisfactory samples were samples either of Milk or Butter.

Sixteen samples supplied as butter consisted of ordinary margarine containing not more than the small proportion of butter fat allowed by law. Eleven samples were mixtures of butter and margarine, containing foreign fat in proportions ranging from 15 per cent. up to 50 per cent. Six samples of butter, otherwise genuine, contained boracic preservative in excess of the limit of 0·5 per cent., suggested in 1901 by the Departmental Committee of the Local Government Board on Food Preservative, the quantity of boracic preservative being in three cases 0·8 per cent., in one case 0·9 per cent., and in two cases 1 per cent. Boracic preservative was found in a large number of other cases, namely, in about 400 of the 610 samples of butter examined, but with the exception of the cases mentioned the proportion did not appreciably exceed the suggested limit of 0·5 per cent., and was in most cases considerably less.

Two samples of butter contained excessive quantities of water, namely, 22 per cent. and 24 per cent. respectively, the legal limit being 16 per cent.

Forty-five samples of milk contained added water, the proportions being :—

In 26 cases from 4 per cent. to 10 per cent.

In 8 cases from 11 per cent. to 15 per cent.

In 8 cases from 16 per cent. to 20 per cent.

In 1 case 22 per cent.

In 1 case 25 per cent.

In 1 case 37 per cent.

These samples included three which were skimmed as well as watered.

Thirty other samples were deficient in fat, the deficiencies (stated as percentages of the minimum normal quantity laid down in the statutory regulations of the Board of Agriculture) being :—

In 9 cases from 8 to 10 per cent.

In 8 cases from 11 to 15 per cent.

In 7 cases from 16 to 20 per cent.

In 2 cases 26 per cent.

In 1 case 35 per cent.

In 2 cases 36 per cent.

In 1 case 46 per cent.

One sample of milk contained boracic preservative in the proportion of three grains per pint. Except in the case of this one sample, no preservatives were detected in any of the samples of milk taken during the year.

Some of the samples purchased as skimmed or separated milk consisted simply of whole milk watered down with large quantities of water, in one case as much as 47 per cent. One sample had the composition of a mixture of milk and water and separated milk, and two consisted of suspiciously poor " whole " milk. Most of these samples were purchased in the street on the demand of the inspector to be supplied with milk from a given can; but the probability is that, although described to the inspector as skimmed milk, the contents of the cans were not retailed to the ordinary customer under this name.

A sample purchased as coffee contained 50 per cent. of chicory, and a sample of " lard compound " was adulterated with 8 per cent. of water.

A sample of medicine was found not to have been compounded in accordance with the prescription. It may be added that this prescription was not dispensed by a qualified chemist and druggist.

A sample of sweets, sold without declaration of the presence of a drug, contained $2\frac{1}{2}$ per cent. of chloroform.

(Signed) B. DYER,

Public Analyst.

LABORATORY REPORT.

The work in this Department continues to increase. Most of this is done at my Laboratory at Chelmsford, but certain districts near London find it more convenient to send to my Laboratory at the London Hospital Medical College. The examinations made during the past year were as under :—

Chemical Department.

Potable waters	202
Effluents and River Waters	115
Various	4
Total	321

Bacteriological Department.

Diphtheria diagnosis	784
Typhoid ,, ...	30
Phthisis ,, ...	112
Ringworm ,, ...	370
Waters examined	86
Sundries	18
Total	1400
Grand Total ...	1721

This is an increase of 613 over the number of examinations made in 1909.

INSPECTORS OF NUISANCES REPORTS.

A tabulated statement of the work done by the Sanitary Inspectors will be found in Tables XXXI. & XXXII. In comparing these care must be taken not to draw erroneous conclusions, as they are not filled in on a uniform plan. For example one Inspector may state under the heading of "slaughter houses" inspections made 72, meaning that six slaughter houses have been inspected monthly, whilst another who had also inspected monthly would only put the actual number of slaughterhouses.

In a few districts the Inspector or Chief Inspector furnishes a report which may or may not be issued with that of the Medical Officer of Health.

Separate reports are furnished by

H. Wood ...	Inspector ...	Barking.
W. K. Baker ...	,, ...	Chelmsford.
J. Wells ...	,, ...	Colchester.
J. G. Banks ...	,, ...	East Ham.
J, W. King ...	,, ...	Ilford.
H. Miller ...	,, ...	Leyton.
L. C. Edwards ...	,, ...	Leigh.
W. W. West ...	,, ...	Walthamstow.

TABLE XXXI.

URBAN DISTRICTS.

SUMMARY OF REPORTS BY SANITARY INSPECTORS.

	Barking.	Braintree.	Brentwood	Brightlingsea.	Buckhurst Hill.	Burnham.	Chelmsford.	Chingford.	Clacton.	Colchester.	East Ham	Epping.	Frinton.	Grays.	Halstead.	Harwich.	Ilford.	Leigh-on-Sea.	Leyton.	Loughton.	Maldon.	Romford.	Saffron Walden	Shoeburyness.	Southend-on-Sea.	Waltham Holy Cross.	Walthamstow.	Walton-on-the-Naze.	Wanstead.	Wivenhoe.	Witham	Woodford.
1. Complaints received ...	131	...	48	13	9	23	59	23	9	451	1035	4	20	67	11	...	326	47	402	17	21	39	14	91	352	52	315	6	51	3	5	42
2. Nuisances detected without complaint ...	1976	...	565	9	35	31	547	57	122	360	4825	63	16	435	113	...	1062	295	...	9	81	505	23	103	993	349	3986	35	72	15	71	295
3. Nuisances abated ...	2131	...	535	22	42	53	451	65	128	683	4763	58	24	501	92	...	1010	342	...	23	102	516	37	96	1242	476	4301	85	81	19	16	363
4. Notices served ...	782	...	47	2	...	4	338	61	96	713	1624	..	18	152	90	...	985	205	4825	5	69	526	25	72	721	16	1061	50	70	16	3	151
5. Summonses taken out	...	...	1	...	...	..	...	2	1	...	17	...	..	...	...	...	...	...	...	...	...	3	1	2	...	...	1	...	1	...	...	1
6. Convictions ...	...	...	...	...	...	...	...	2	1	...	14	...	...	...	...	...	...	...	...	...	...	...	1	1	...	..	1	...	...	...	...	...
7. Cottages inspected ...	2647	...	475	346	10	117	3019	311	368	3154	2721	149	42	797	287	...	3787	46	4217	23	350	407	123	213	2130	301	5529	80	71	308	26	654
8. Lodging-houses inspected ...	7	...	2	...	...	...	54	...	...	2	10	4	..	3	...	...	...	...	...	...	2	2	...	...	...	...	...	79	...	...	..	...
9. Slaughter-houses inspected ...	3	...	8	18	49	4	253	3	4	22	124	123	...	5	50	..	3	2	18	3	4	9	5	..	226	141	15	2	2	1	4	35
10. Bake-houses inspected	18	...	9	14	49	7	113	3	9	48	134	30	2	9	39	...	33	8	...	5	9	15	13	3	296	33	54	5	4	4	5	26
11. Dairies and Milk Shops inspected ...	46	...	3	6	104	6	103	12	26	105	261	24	4	37	18	...	52	8	173	5	11	28	9	8	604	44	199	3	8	4	1	14
12. Cowsheds inspected ...	2	...	...	3		4	87	11	6	50	56	23	1	1	21	...	11	8	7	7		19	14	2	48	98	12	3	6	1	9	10
13. Workshops inspected...	299	...	89	13	119	19	93	7	90	434	343	14	17	52	60	...	440	...	241	19	..	102	72	6	1130	57	486	10	9	2	35	164
14. Filthy houses cleansed, sec. 46, Public Health Act, 1875 ...	...	...	3	...	...	3	9	2	...	..	...	1	...	3	...	...	...	2	...	...	...	23	...	2	60	18	131	0	...	...	...	...
15. Houses disinfected ...	216	...	23	2	24	15	39	27	67	161	857	17	4	46	8	...	313	30	727	11	32	38	15	14	239	55	555	5	58	24	9	29
16. Overcrowding abated...	17	...	1	...	...	3	5	1	...	11	20	1	...	2	3	...	5	1	25	2	...	10	2	7	6	11	56	...	2	...	...	7
17. Houses placed in habitable repair ...	...	...	6	1	2	9	...	2	...	1	...	32	...	...	...	...	8	...	...	...	...	2	1	23	...	44	...	...	...	...	...	...
18. Houses closed ...	...	...	...	...	..	...	...	..	...	...	11	2	...	...	...	...	10	...	...	...	...	3	1	6	...	3	...	...	...	...	...	...
19. Houses erected or re-built for which Water "Certificates" were applied ...	...	...	16	3	4	3	64	...	...	..	295	3	...	...	3	...	...	...	...	19	...	...	...	27	641	14	...	7	...	4	7	...

4. Name of Inspector ...	H. Wood	A. J. Neeson	H. V. Lord	J. T. Heath	Chas. Weedon	W. K. Baker	J. T. Griffin	A. W. Shadick	Thos. Wells	J. G. Banks	Herbert Webb	E. M. Bate	W. G. Marshall	W. A. Nicholson	F. W. King	L. E. Edwards	H. Miller	J. T. Heath	T. R. Swales	G. R. Bailey	A. N. Forbes	Fredk. Feather	W. Whur	D. L. Ball	W. W. West	H. Gladhill	P. S. Howard	R. H. Barrell	W. P. Perkins	W. S. Mills
20. "Certificates" granted ...	...	16	3	4	3	64	...	...	...	205	3	...	...	3	...	...	...	19	.	...	...	27	636	14	...	7	...	4	7	..
21. deferred ...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...
22. Wells sunk or improved supplies of water afforded ...	...	2	...	...	5	...	...	...	2	...	3	...	...	...	...	...	...	...	...	1	...	...	...	7	...	...	1	...	...	...
23. Wells cleansed or repaired ...	...	...	...	...	..	1	..	...	2	...	...	...	...	...	...	...	...	...	...	7	...	...	..	..	...	2	...	...	...	...
24. Wells closed ...	...	1	...	2	...	5	...	...	4	..	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
25. Houses connected with sewers ...	...	16	3	4	3	64	126	34	18	555	8	...	21	5	...	...	...	19	21	...	3	26	634	13	...	11	155	...	7	...
26. Houses connected with water mains ...	...	18	9	4	3	64	142	66	5	555	5	...	22	5	...	114	...	19	21	21	16	27	...	14	...	7	155	30	7	...
27. Earth, pail or improved Privies constructed, or existing Privies altered ...	...	...	2	...	1	...	2	22	23	...	...	...	1	...	...	...	...	...	...	...	15	13	12	11	...	4	...	...	...	...
28. Privies and W.C.'s repaired; W.C.'s supplied with water ...	...	53	4	4	1	186	23	...	71	777	18	12	145	47	...	649	14	912	6	...	73	21	20	98	42	190	15	8	22	...	49
29. Cisterns cleansed, repaired or covered ...	...	19	...	5	...	28	5	...	...	345	...	2	1	...	...	107	...	419	...	...	5	3	...	26	31	193	2	8	...	...	19
30. Animals improperly kept removed ...	...	6	..	1	3	45	2	...	81	41	2	...	7	...	...	365	1	62	1	...	14	1	30	20	125	43	...	...	2	7
31. Samples of water taken for analysis ...	...	1	2	...	...	4	...	12	8	...	1	...	4	1	..	2	2	...	..	...	11	1	...	14	...	...	...	...	1	..
32. Compensation paid for destruction of infected bedding ...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3/6	...	...	...	...	...
33. Seizures of unsound meat, etc. ...	11	...	...	...	...	...	...	1	...	13	1	...	1	...	...	19	1	...	...	...	...	...	...	...	13	...	...	...	...	1

TABLE XXXII.

RURAL DISTRICTS.

SUMMARY OF REPORTS BY SANITARY INSPECTORS.

	Belchamp.	Billericay East.	Billericay West.	Braintree.	Bumpstead.	Chelmsford.	Dunmow.	Epping.	Halstead No. 1.	Halstead No. 2.	Lexden and Winstree.	Maldon.	Ongar.	Orsett.	Rochford.	Romford, 1st div.	Romford, 2nd div.	Saffron Walden.	Stansted.	Tendring.
1. Complaints received	15	27	33	19	6	17	19	60	6	22	13	19	6	35	18	...	53	9	6	39
2. Nuisances detected without complaint	83	156	142	56	40	253	254	...	149	83	83	194	67	273	64	...	334	63	140	36
3. Nuisances abated	98	139	155	75	42	241	240	...	117	89	83	210	62	308	82	117	338	64	125	32
4. Notices served	25	44	48	108	5	270	170	1015	71	59	13	54	9	137	70	119	153	65	25	7
5. Summonses taken out	...	...	9	1	...	1	1	...	1	...	...	4	..	12	1	1	...	2	1	2
6. Convictions	...	...	9	1	..	1	...	...	...	...	...	2	...	...	1	1	...	2	...	2
7. Cottages inspected	340	280	272	170	268	610	519	431	740	568	670	804	240	320	250	...	...	272	360	340
8. Lodging-houses inspected	...	...	...	...	...	1	1	...	...	...	...	...	..	1	.	...	...	...	...	...
9. Slaughter-houses inspected	3	4	6	27	2	14	17	66	7	10	15	15	5	17	8	8	6	10	26	17
10. Bakehouses inspected	16	9	6	43	9	25	35	84	8	31	32	24	8	15	6	12	6	30	14	29
11. Dairies and Milk Shops inspected	4	51	20	40	35	85	64	...	25	12	8	20	...	41	3	37	14	16	} 75	92
12. Cowsheds inspected	4	49	41	64	35	85	100	234	25	21	15	60	89	42	18	56	13	16		
13. Workshops inspected	33	10	17	50	34	35	124	205	39	56	16	41	...	44	...	26	13	59	75	48
14. Filthy houses cleansed, sec. 46, Public Health Act, 1875	...	...	4	2	...	12	7	15	...	2	2	...	...	...	...	...	4	...	...	1
15. Houses disinfected	1	15	24	56	3	98	16	58	25	2	39	29	21	52	42	23	35	9	1	43
16. Overcrowding abated	3	2	5	3	1	6	6	18	2	5	1	4	...	2	5	2	3	...	2	1
17. Houses placed in habitable repair	9	17	3	29	8	9	47	29	41	11	9	9	6	5	...	10	21	...	18	...
18. Houses closed	11	4	2	30	...	1	3	1	...	9	...	7	...	18	6	4	16	...	1	5

	Sidney Allpress	R. J. W. Layland	S. J. Shelley	E. H. Bright	H. B. Thake	W. Edser	J. Flumbley	J. H. Bell and W. Beard	H. O. Goss	W. H. Eade	Jno. H. Pettitt	W. Almond	W. N. Jarvis	John Hurst	A. C. Madge.	A. Cornell	G. T. Carter	A. E. Pitstow	E. T. Watts	Ernest H. Grant
19. Houses erected or re-built for which Water "Certificates" were applied	3	89	23	21	3	70	40	...	3	7	67	39	22	34	58	...	...	8	20	...
20. "Certificates" granted	3	58	21	21	3	24	37	22	3	5	83	27	17	34	58	...	...	...	11	32
21. " deferred	2	31	2	...	...	14	3	...	...	.	4	12	5	...	...	...	...	6	...	2
22. Wells sunk or improved supplies of water afforded	4	...	3	21	...	...	6	4	2	10	21	5	6	1	1	...	25	1	1	...
23. Wells cleansed or repaired	9	4	4	3	3	...	4	6	5	...	5	3	...	3	2	2	2	...	5	...
24. Wells closed	6	...	...	..	...	...	1	2	...	3	...	...	...	...	...	...	...	...	...	...
25. Houses connected with sewers	...	15	19	12	...	...	19	18	...	6	...	12	18	18	1	...	500	2	10	4
26. Houses connected with water mains	...	161	19	250	...	...	53	38	...	...	13	32	12	139	8	10	24	..	10	...
27. Earth, pail, or improved Privies constructed, or existing privies altered	12	38	10	38	5	35	70	12	8	42	40	15	42	10	2	5	25	17	16	7
28. Privies and W.C.'s repaired; W.C.'s supplied with water...	36	21	8	14	14	16	11	30	21	5	35	26	6	88	1	14	54	...	3	...
29. Cisterns cleansed, repaired, or covered	...	5	1	3	...	...	...	...	...	...	..	...	...	6	1	18	2	...	...	...
30. Animals improperly kept removed	4	2	1	...	...	1	2	21	2	...	10	1	1	5	2	4	16	7	...	7
31. Samples of water taken for analysis	24	15	18	10	1	112	18	14	4	19	4	32	1	10	5	15	2	2	...	63
32. Compensation paid for destruction of infected bedding	..	12/-	11/9/15	£3	...	28/9	...	...	...	...	...	...	...	...	...	...	...	5/-	..	6/-
33. Seizures of unsound meat, etc.	...	...	1	...	...	...	10	7	...	...	...	...	...	...	...	...	...	...	...	...
34. Name of Inspector																				

CHIEF IMPROVEMENTS EFFECTED AND FURTHER IMPROVEMENTS REQUIRED.

It is very much to be regretted that Medical Officers of Health do not, as a rule, give a brief summary at the end of their reports of the Improvements effected and of the Improvements required. This would be of especial value to the Sanitary Authority. In many reports neither of these matters are referred to, and it is only by carefully going over them that anything can be learned about the improvements effected, and usually there are no indications whatever as to the improvements required. A district must be in a very excellent condition indeed if no further improvement is necessary, and if any improvement is necessary it is the duty of the Medical Officer of Health to point it out to the Authority. This pointing out of sanitary requirements is the most important function of the Medical Officer, and unless discharged it is not to be expected that the Sanitary Administration can be effective.

In some reports improvements are recorded which had never previously been referred to as necessary. If they were necessary, and about this there can be no doubt, reference should have been made to them in previous reports.

From recent reports the Improvements required and Improvements effected, so far as they can be ascertained, have been tabulated.

Urban Districts.	Improvements required.	Improvements recorded in 1910 and Remarks.
Barking	1900. Better system of sewage treatment and sewerage of Creeksmouth.	Scheme sanctioned.
	1900. Refuse destructor.	
	1904. New nursing home and administration block required at hospital.	
	1909. Laboratory required.	Apparently provided.
	,, Building bye-laws, addition to.	
	,, Urinals for public.	
Braintree		New sewage works provided.
Brentwood	1906. Improved disposal of refuse.	
	,, Improved system of sewerage and sewage disposal.	A scheme nearly completed.
	1907. The provision of an Isolation Hospital, disinfector, and ambulance.	
Brightlingsea ...	1907. Washing utensils in cowsheds.	
	,, Provision of diphtheria antitoxin.	Now provided.
	1909. Making up roads and footpaths.	
Buckhurst Hill ...		Certain sewers re-laid, flooding prevented.
Burnham-on-Crouch ...	1900. Flushing apparatus to w.c's.	
	1906. Public sanitary convenience.	
	1907. Suitable Isolation Hospital.	
	1910. Increased pressure in water mains at higher part of town.	
Chelmsford	1900. An additional and reserve water supply.	
	1902. Veterinary Inspector for milch cows.	
	1903. Refuse destructor and more frequent removal of house refuse.	
	1909. Provision for the reception of cases of typhoid fever.	
	1910. Erection of workmen's dwellings.	
Chingford	1909. Insanitary condition of Railway Company's premises.	
	1910. More efficient ventilation of schools.	

Urban Districts.		Improvements required.	Improvements recorded in 1910 and Remarks.
CLACTON	1902.	Refuse destructor.	
	1906.	Sewerage of Bocking's Elm and Coppin's Wick.	
	1910.	Scavenging of cesspools.	
COLCHESTER	1908.	Improved accommodation at Isolation Hospital.	Provided.
	,,	Improved regulations for dairies and cowsheds.	
	1909.	Water supply to w.c's.	
EAST HAM	1908.	Public Health offices.	
	1909.	Covered public swimming bath.	Plans passed.
EPPING	1907.	Flushing cisterns for w.c's.	
	1908.	Adoption of certain sections of the Public Health Acts Amendment Act, 1907.	
	,,	Scarcity of suitable houses for the need of the district.	
	1910.	Weekly removal of house refuse in certain areas.	
FRINTON	1907.	New cemetery.	
GRAYS	1905.	Improvements at sewage works.	
HALSTEAD	1904.	Re-sewering of the south side of High Street.	
	1908	Storm waters should be diverted from sewers.	
	,,	Improvements at sewage outfall works.	Being improved.
	,,	A public abattoir.	
	1909.	Better sanitary dustbins.	
	,,	Second covered cart for refuse.	
	1910.	Cottages with three bedrooms.	
HARWICH	1907.	Improved ventilation of sewers in upper portions of the town.	A portion completed.
	1908.	House drains require more attention and drainage of Upper Dovercourt.	Efficient sewers laid.
ILFORD	1906.	Provision of dust destructor.	Loan applied for.
LEIGH	1909.	An Isolation Hospital.	
	,,	Making up of new roads.	
	1910.	Bye-laws for slaughterhouses.	
			Whole time Inspector appointed.
LEYTON	1901.	Permanent Isolation Hospital.	Temporary hospital has been enlarged.
	,,	More public sanitary conveniences.	
	1910.	A Lee Valley main sewer.	
			Improved Public Health Offices provided.
LOUGHTON	1908.	More frequent removal of house refuse.	Weekly collection decided upon.
MALDON	1910.	Substitution of w.c's for remaining privies.	
	,,	More general ventilation of house drains.	
	,,	Paving of back yards where required.	
	,,	Provision of more cottages for working classes.	
	1910.	Provision of sanatorium for non-pauper cases of consumption.	
			Public Health Acts Amendment Act (1907) adopted.
ROMFORD	1907.	Flushing apparatus for w.c's.	
SAFFRON WALDEN ...	1900.	Better system of sewage disposal and extension of sewers.	Now in progress.
SHOEBURYNESS... ...	1907.	An increased water supply.	Improved.

Urban Districts.		Improvements required.	Improvements recorded in 1910 and Remarks.
SOUTHEND-ON-SEA ...	1910.	Sewage disposal works and extension of sewers.	Works in progress.
	,,	Dust destructor.	Loan sanctioned.
	,,	Enlargement of administrative block at Hospital.	
	,,	Making up of new streets and back passages.	Many made up.
	,,	More active measures against tuberculosis, including provision of dispensary.	
	,,	Daily cleansing of shelters, &c.	Now done.
	,,	Powers to inspect store places of ice cream vendors, fruit hawkers, etc.	
	,,	Improved bye-laws relating to tents, vans, etc.	Obtained.
	,,	Revision of building bye-laws.	
	,,	Adoption of certain sections of Public Health Acts Amendment Act, 1907.	Now being considered.
	,,	Bye-laws relating to keeping poultry.	Applied for.
WALTHAM HOLY CROSS ...	1909.	Sewerage of Upshire, High Beech, and Sewardstone.	Sanction for loan applied for.
WALTHAMSTOW ...	1909.	More public conveniences.	
	,,	An improved disinfecting station.	
	1910.	An extra Health Visitor.	
	,,	Increased office accommodation.	
			Improved Dairy Regulations adopted.
WALTON-ON-THE-NAZE ...	1903.	Isolation Hospital accommodation.	
	1910.	Refuse tip unsatisfactory.	
WIVENHOE	1909.	Dead wells cause nuisances. Sewerage ?	
WANSTEAD	1910.	Nuisances caused by motor buses.	
	,,	Improved sewage works.	Tenders being obtained.
WITHAM	1900.	Isolation Hospital.	
	1909.	Improvements in sewers and sewage disposal works.	
	1910.	More modern bye-laws.	
WOODFORD	1910.	Removal of stagnant water breeding mosquitos.	
Rural Districts.			
BELCHAMP	1906.	More district nurses.	There are now 3 district and maternity nurses in the 5 parishes. The M.O.H. wants more of these valuable hygienic helpers.
BILLERICAY	1905.	Water supply for Basildon, Laindon, and elsewhere.	Provided.
	1900-1909.	Sewerage of Billericay referred to annually.	Local Government Board sanction to a scheme obtained.
	1909.	More houses for working classes.	
	,,	Improved regulations for dairies, etc.	
	,,	Improved and enlarged Hospital.	
	1910.	Public scavenging in certain areas.	
BRAINTREE	1907.	Water supply to Bocking and Coggeshall.	Provided for Coggeshall and Kelvedon.
	1908.	Sewerage of Kelvedon.	Scheme submitted to Parish Council.
	,,	Sewerage and water supply, Hatfield Peverel.	
	1910.	Cottages wanted.	
BUMPSTEAD			
CHELMSFORD	1901.	Water supply for Stock.	Often considered. No feasible scheme yet suggested.
	1906.	Sewerage for Broomfield.	Scheme prepared.
	,,	Water supplies for West Hanningfield and Buttsbury.	No scheme yet devised at a reasonable expense.
	1907.	Water supply for Broomfield.	Scheme in progress.
	1908.	Improved drainage of Little Waltham and Woodham Ferris.	
	1910.	Abolition of privies, etc.	

Rural Districts.		Improvements required.	Improvements recorded in 1910 and Remarks.
DUNMOW	1908.	Better sewerage and system of sewage disposal at Dunmow and Thaxted.	Scheme for Dunmow under consideration.
	1910.	Building bye-laws.	
	,,	Public scavenging in Dunmow and Thaxted.	
EPPING	1908.	Better housing accommodation to relieve overcrowding.	
	1909.	Sewerage of Roydon, Potter Street, North Weald Gullett, and Sheering.	Scheme for Potter Street, North Weald, and Thornwood approved by Local Government Board.
	1910.	Scavenging of Theydon Bois.	
HALSTEAD I.	1908.	Water supply for Earls Colne and White Colne.	
	,,	Building bye-laws.	
HALSTEAD II.	1903.	Bye-laws for drainage and for keeping and slaughtering of animals.	
	1908.	The drainage of several parishes requires attention.	
LEXDEN & WINSTREE ...	1902.	Sewerage of West Mersea, Rowhedge, and Stanway.	
	1903.	Proper Isolation Hospital.	
	1905.	Better examination of water supplies to cottages.	
	1907.	Improved water supplies at Wigboroughs, West Mersea, and Abberton	
	1908.	Provision of portable ashbins where contractors remove refuse.	
	1910.	Proper apparatus for emptying cesspools.	
MALDON	1908.	Water supply for Tollesbury and Heybridge.	Under consideration.
	,,	Improved sewerage system at Southminster.	Slight improvement effected.
	1910.	Provision of cottages with 3 bedrooms.	Six cottages to be provided at Tolleshunt D'Arcy.
	,,	Increased pressure in certain parts of the Purleigh Water system.	
	,,	Examination of Southminster Waterworks to improve works and increase supply.	
	,,	Improved water supply to Steeple.	
	,,	Enclosure of Tollesbury sewage works.	
	,,	Abolition of privy cesspits.	
	,,	Some arrangements for dealing with comsumptives.	
	,,	Veterinary inspection of milch cows.	
ONGAR	1909.	Sewerage of High Ongar and provision of water supply.	
	1910.	Scavenging High Ongar and Marden Ash.	
ORSETT	1902.	Drainage at West Thurrock and Aveley.	Pressing. Scheme rejected by Local Government Board.
	1904.	Water supply to Laindon Hills and elsewhere.	Now provided.
ROCHFORD	1900.	Drainage for Rayleigh, Hadleigh, South Benfleet, Great Wakering, and Rochford.	Certain improvements have been effected to prevent nuisances arising.
	1910.	Scavenging of South Benfleet and extension of Rayleigh area.	
ROMFORD			
SAFFRON WALDEN ...	1904.	Sewerage systems for Newport and Great Chesterford, if they can be provided at reasonable cost.	
	1910.	Better water supply for Wimbish.	
STANSTED	1910.	Public scavenging.	
TENDRING	1900-1910.	Improved sewerage of Manningtree, Mistley, Lawford, Thorpe, and Great Bentley.	
	1905.	An Isolation Hospital for a combined district.	
	1910.	Improved water supply to Ardleigh, St. Osyth, Bentley, and Weeley.	
	,,	A better type of cottages.	

ABSTRACT OF SPECIAL REPORTS

Received during 1910.

A great many so-called Special Reports were merely notices that certain schools had been closed on account of the prevalence of measles or other infectious disease. A few contained very brief details about the outbreak. The more important reports received are summarized below:—

1. *Small-pox in Colchester, dated January 26th, 1910.*

Four cases of small-pox have occurred here. The two first patients were man and wife and were notified at the same time. The man was a carter employed by a firm in the borough. They were promptly removed to the small-pox hospital. A few days later a daughter-in-law was attacked who had come home to be confined and both mother and child died from small-pox. The steps taken arrested any further spread of infection. The origin of the first case had not been discovered.

2. *Scarlet fever in the parish of Ingatestone in the Rural District of Chelmsford, May, 1910.*

This report was printed and related to an outbreak of a very mild type of scarlet fever which had continued for over two months, 60 persons being attacked. Milk was under suspicion from the first but the evidence was very inconclusive. No cases occurred amongst the consumers of milk from the implicated farm save those supplied by a local dealer. Of the persons supplied by this dealer only those within a certain area were attacked. The disease was of so mild a type that many persons went about their duties until peeling was noticed and it is possible that the infection was chiefly spread in this manner.

3. *Insanitary property in Epping Urban District, May, 1910.*

Dr. Fowler reports upon houses in the Rookery, Hemnall Street, Queen's Alley, and Crown Court. He has no hesitation in saying "that the most satisfactory method of dealing with the evils connected with such courts, houses, and alleys, and the sanitary defects in such an area is an improvement scheme."

4. *The water supply to Hull Bridge in the Rochford Rural District, April, 1910.*

This hamlet is in a general state of decay. Many cottages are unoccupied, others are in bad repair. The brickfields are closed. The few shallow wells all yield polluted water. The school is supplied by rain water which is stored and filtered. There is a private deep well which has not been used for some time. The Medical Officer of Health thinks that if the water is good this well might be utilized. Failing this the water mains might be extended, but this would be an expensive matter as the nearest main is three miles distant.

5. Scarlet fever in Navestock in the Ongar Rural District, July, 1910.

A school outbreak. Infection was introduced into the school in June and 15 cases followed before the end of the month. The disease spread to the neighbouring parish of Stanford Rivers, and both schools had to be closed.

6. Cerebro-spinal meningitis in the Chelmsford Rural District, October, 1910.

A child was taken suddenly ill and the medical attendant asked the Medical Officer of Health to see the patient. At their visit next morning the child was dead. Further investigation shewed that in the group of six houses near (in Sandon parish) nearly all the children had been ill and two were still ailing. One of these was said to have had "sunstroke" and the other had been "giddy, sick, and feverish" and was still very weak. The child who died and the one said to have had sunstroke had exhibited all the typical symptoms of cerebro-spinal fever. Careful watch was kept over the whole of the inhabitants for a month but no other suspicious case occurred.

SPECIAL SECTION.

HARD *versus* SOFT WATER.

The Medical Officer of Health for Brightlingsea having expressed the opinion in his report that soft water is more beneficial to health than hard water, and the question of the relative salubrity having often been put to me, I have decided to refer to this subject in a special section, basing the statistical evidence upon the returns for the past year. The recent census returns enable me to get a sufficiently correct estimate of the populations to make the results reliable.

The subject has been investigated by several Royal Commissions in this and other countries, and all have concluded that there is no reliable evidence to show that a soft water is more beneficial to health than hard water, or *vice versa*. I have given much attention to the subject and have not succeeded in obtaining any reliable evidence pointing in one way or the other, but I have heard many medical men express the opinion that amongst the users of soft water fewer suffer from digestive disturbances than amongst the users of hard water. That hard water produces "stone," "gout," or "rheumatism," or that soft water induces "rickets" in children there is not a tittle of evidence to support. Unfortunately the death statistics sent in to me do not enable me to ascertain the number of deaths which occur from those diseases. I have limited my investigation to the general death-rate and the death-rate from cancer, phthisis and typhoid fever. There is no reason to suppose that cancer, phthisis, or typhoid fever are affected by the hardness or softness of the water, but there was a possibility of one or other of these diseases being found to be excessively prevalent in some area, and this might have indicated some further line of research. To avoid introducing the effect of purity or impurity, I have limited my investigations to the Urban Districts in which all the water supplies are admitted to be of excellent quality, and I have divided these into groups according to the "hardness" of the water supplies. The two areas supplied by the Metropolitan Water Board and the the South Essex Water Co. have been dealt with separately, as these supply areas differing in character from those in the other groups. The 18 towns in Rural Essex are divided into three groups as under:—

Group I.—

Hardness of water supply under 10° (per 100,000) ... Soft water area

Group II.—

,, ,, between 10° and 20° ,, ... Moderately hard water areas

Group III.—

,, ,, 20° and upwards ,, ... Hard water areas

Under each group are given the death-rates for all causes, and from cancer and phthisis, for the year 1910.

GROUP I.

Soft Waters. Population 84,080.

	Hardness.	Death-rate from all causes.	Cancer Death-rate.	Phthisis Death-rate.
Burnham ...	4°	12·0	1·0	1·0
Leigh-on-Sea ...	4°	11·7	1·35	1·0
Maldon ...	4°	11·8	1·04	·69
Shoeburyness ...	4°	9·3	1·2	·81
Southend-on-Sea	4° to 9°	10·4	1·1	·87
Whole Area ..		10·2	1·07	·84

GROUP II.

Moderately Hard Waters. Population 64,730.

	Hardness.	Death-rate from all causes.	Cancer. Death-rate.	Phthisis. Death-rate.
Braintree ...	17°	12·8	1·5	·7
Brightlingsea ...	15°	8·9	·79	·6
Colchester ...	17°	12·0	·78	1·0
Saffron Walden	12°	11·8	·64	·48
Witham ..	10°	11·2	1·15	·58
Wivenhoe ...	13°	10·0	·8	1·26
Whole Area ...		11·75	·86	·93

GROUP III.

Hard Waters. Population 54,670.

	Hardness.	Death-rate from all causes.	Cancer Death-rate.	Phthisis Death-rate.
Clacton ...	20°	10·0	·3	·84
Chelmsford ...	20°	9·4	·78	·61
Epping ...	30°	11·4	1·2	1·2
Frinton ...	27°	7·25	·7	2·9
Walton ...	27°	11·6	1·4	·9
Harwich ...	27°	9·8	·53	·9
Halstead ...	27°	14·9	1·1	1·3
Whole Area ...		10·2	·73	·93

	Extremes.			Averages.		
	All causes.	Cancer.	Phthisis.	All causes.	Cancer.	Phthisis.
Group I.	9·3 to 12·0	1·0 to 1·35	·69 to 1·0	10·2	1·07	·84
„ II.	8·9 to 12·8	·64 to 1·5	·48 to 1·26	11·7	·86	·93
„ III.	7·25 to 14·9	·3 to 1·4	·61 to 2·9	10·2	·73	·93

The death-rates from all causes varied very considerably in the different districts but taking the whole of the soft water and hard water areas the death-rates were identical. The moderately hard water area had a rather higher death-rate than the others.

There is certainly nothing here to indicate that a soft water area is generally healthier than one supplied with very hard water.

The death-rates from phthisis and cancer vary enormously in the different districts and the average for the whole areas shew that in the year under consideration there was the largest proportion of deaths in the soft water area, and the lowest proportion in the hard water area. Whether this is accidental or not can only be determined by further investigation.

The phthisis death-rate was lowest in the soft water area, but there is no difference between the areas with moderately hard and very hard waters. Moreover such difference as does occur is very slight and doubtless accidental.

The towns supplied with water from the South Essex Water Company obtain a water which varies in hardness according to the proportion of water derived from the Company's various sources. These vary from 12·5° to 22° in hardness, and it may be taken therefore that the average will be well under 20°, and come under the category of a moderately hard water.

The towns supplied entirely by the Metropolitan Water Board also obtain water from different sources which, according to their water examined, averaged during 1910, 25° of hardness. These towns therefore form a hard water area.

GROUP IV.

South Essex Area. Moderately hard water. Population 70,550.

	Death-rate.	Cancer Death-rate.	Phthisis Death-rate.
Barking ...	10·7	·53	·82
Brentwood ...	10·7	·74	·0
Grays ...	9·2	·89	1·0
Romford ...	10·5	·88	1·0
Whole area	10·3	·71	·82

GROUP V.

Metropolitan Water Board Area. Hard Water. Population 424,000.

Buckhurst Hill ...	9·2	1·23	·4
Chingford ...	7·3	·76	·25
East Ham ...	10·3	·72	·86
Leyton ...	9·0	·7	·82
Loughton ...	7·4	1·12	·38
Waltham Cross ...	10·3	·88	·74
Walthamstow ...	9·7	·6	·7
Wanstead ...	6·8	·81	·6
Woodford ...	7·3	1·0	·33
Whole area	9·6	·73	·78

When the above results are compared it is seen that the area with the harder water has the lower death-rate. The cancer and phthisis death-rates differ very little, but the cancer death-rate is lower than in the soft water area. (Group I.)

Taking the whole 5 areas, Nos. 1 to 4 are entirely supplied by well and spring waters and only No. 5 is supplied with filtered river water (though not entirely). We may, I think safely draw two important conclusion from the above results :—

1. That in the areas supplied with hard water the death-rate is quite as low as, if not actually lower than in the areas supplied with a soft or moderately hard water.
2. That filtered river water, even when the river water impounded is known to be more or less sewage polluted, is as wholesome as the deep well and spring supplies used in this county.

The second conclusion is verified by reference to the enteric fever statistics. Amongst the 424,000 people using water chiefly derived from the Lee and Thames there occurred during the year 58 cases of enteric fever, equal to ·14 per 1,000 population. Amongst the 274,000 people using water drawn from deep wells and springs 44 cases of enteric fever occurred, equal to ·16 per 1,000 population.

It must be admitted that 11 out of the 58 cases in the Metropolitan Water Board's district died of the disease, whereas only 1 out of the 44 cases in the other areas succumbed. Ten out of the 11 deaths in the Metropolitan Water Board's area occurred in East Ham (5), Leyton (2) and Walthamstow (3) and probably, in these populous areas, medical attendance is not obtained as early as elsewhere, and delay in obtaining skilled attention in such cases is almost certainly fatal. Whatever the cause the argument is not affected, as the actual number of cases occurring would be the important factor if the character of the water had any connection with the disease. It is however, in the highest degree, probable that not one of the whole 102 cases was due to the drinking water; certainly no Medical Officer of Health attributes a case to the use of the public water supply.

In the above Tables it may be noted that Ilford is not referred to. This is because one portion of the Urban District is supplied by the Metropolitan Water Board and the remainder by the South Essex Water Co. and I do not know exactly the proportions. The death-rates for Ilford are as under :—

From all causes, 8·7. From cancer, ·89. From phthisis, ·67.

Sixteen cases of enteric fever occurred there but only 1 patient died. As the population in the middle of 1910 was close upon 78,000 the typhoid case rate was only a little above the average. Had Ilford been divided and included in Group IV. and V. the effect would not have been appreciable.

In the Rural Districts of the County the water supplies are so numerous and so varied in character that it is impossible to use the statistics for the purpose of shewing the effect of the supplies upon health. Notwithstanding the fact that thousands of persons in the rural areas are drinking more or less polluted well water, only 21 cases and 3 deaths occurred from typhoid fever throughout the whole of rural Essex. In proportion to the population only half as many cases occurred in the rural districts

with their multitudinous sources of supply as occurred in the Urban Districts with supplies of the purest character. Water if specifically infected can, undoubtedly, cause typhoid fever, but however impure, if the specific organism is not present, the water cannot produce this disease amongst its consumers. That impure water has some effect upon health is proved by the fact that whenever a pure water supply has been substituted for one which was impure, there has been a decrease in the general death-rate.

Although there is no proof that hard water affects health, there are certain advantages arising from the use of soft water :—

1. Soft water does not fur kettles, boilers, hot water pipes, &c., and therefore is more economical.
2. Soft water is a better detergent than hard water, and requires the use of less soap and soda for washing purposes.
3. Soft water is preferable to hard water for many cooking purposes, and is generally preferred for making tea.

For the above reasons it is often economical to adopt some process for softening a hard water supply, as is done at Saffron Walden. The South Essex Water Co. also possess a softening plant which is used for the Grays water only.

TO THE COUNTY COUNCIL of every ADMINISTRATIVE COUNTY in England and Wales other than London :—

And to all others whom it may concern.

WHEREAS it is enacted by sub-section (2) of Section 68 of the Housing, Town Planning, &c. Act, 1909 (herein-after referred to as " the Act of 1909 "), that the duties of a Medical Officer of Health of a County shall be such duties as may be prescribed by General Order of the Local Government Board and such other duties as may be assigned to him by the County Council ;

And whereas by virtue of Section 70 of the Act of 1909 the above cited sub-section does not apply to the Administrative County of London :

NOW THEREFORE, We the Local Government Board, in pursuance of the powers given to Us in that behalf, by this Order Prescribe the following duties as the duties of every Medical Officer of Health of a County other than the Administrative County of London ; that is to say :—

(1) The Medical Officer of Health of the County shall inform himself as far as practicable respecting all influences affecting or threatening to affect injuriously the public health in the County. For this purpose he shall visit the several County districts in the County as occasion may require, giving to the Medical Officer of Health of each County district prior notice of his visit, so far as this may be practicable.

(2) The Medical Officer of Health of the County shall from time to time inquire into and report upon the hospital accommodation available for the isolation of cases occurring in the County—

(*a*) of small-pox, and

(*b*) of other infectious diseases,

and upon any need for the provision of further hospital accommodation.

(3) The Medical Officer of Health of the County shall communicate to the Medical Officer of Health of a County district within the County any information which he may possess as to any danger to health threatening that district.

(4) The Medical Officer of Health of the County shall consult with the Medical Officers of Health of County districts within the County whenever the circumstances may render this desirable.

(5) If the annual or special reports of the Medical Officer of Health of a County district in the County shall not contain adequate information in regard to

(*a*) the vital statistics of the district,

(*b*) the sanitary circumstances and administration of the district, and

(*c*) the action taken in the district for putting in force the provisions of the Housing of the Working Classes Acts, 1890 to 1909,

the Medical Officer of Health of the County shall obtain from th Medical Officer of Health of the County district such further information on those matters as the circumstances may demand.

(6) The Medical Officer of Health of the County shall, when directed by Us, or by the County Council, or as occasion may require, make a Special Report to the County Council on any matter appertaining to his duties under this Order.

(7) The Medical Officer of Health of the County shall as soon as practicable after the 31st day of December in each year make an Annual Report to the County Council up to the end of December on the sanitary circumstances, the sanitary administration and the vital statistics of the County.

In addition to any other matters upon which the Medical Officer of Health may consider it desirable to report, his Annual Report shall contain the following sections :—

(*a*) A digest of all annual and special reports made by the Medical Officers of Health of all County districts within the County :

(*b*) a section as to the isolation hospital accommodation available for each County district and as to the steps which should be taken to remedy any deficiencies which may exist ;

(*c*) a section on the administration of the Housing of the Working Classes Acts, 1890 to 1909, within the County ;

(*d*) a section on the water supply of the several County districts within the County ;

(*e*) a section on the pollution of streams within the County and as to the steps for the prevention of pollution taken :—

(i) by the local authorities, and

(ii) by the County Council ;

(*f*) a section on the administration within the County of the Midwives Act, 1902 ; and

(*g*) a section on the administration of the Sale of Food and Drugs Acts, 1875 to 1907, within that part of the County in which the County Council have jurisdiction for the purposes of those Acts.

(8) The Medical Officer of Health of the County shall send to Us two copies of his Annual Report and two copies of any Special Report; he shall also send one copy of his Annual Report to the Council of every County district in the County and shall send three copies of any Special Report to the Council of every such County district affected by the Special Report.

This Order may be cited as the County Medical Officers of Health (Duties) Order, 1910.

Given under the Seal of Office of the Local Government Board, this Twenty-ninth day of July, in the year One thousand nine hundred and ten.

JOHN BURNS,
President.

H. C. MONRO,
Secretary.

APPENDIX.

SUMMARY OF REPORTS OF MEDICAL OFFICERS OF HEALTH.

I. PORT SANITARY DISTRICTS.

PORT OF COLCHESTER.

Medical Officer of Health ... C. A. S. LING, M.R.C.S., Brightlingsea.

The report is in manuscript.

No infectious disease has been notified.

531 vessels were examined during the year, of which 17 were from foreign ports. Six vessels were cleaned and disinfected.

The hospital is in good order and ready for use should occasion require.

PORT OF HARWICH.

Medical Officer of Health ... H. GURNEY, M.R.C.S., ETC., Dovercourt.

The report is printed.

No infectious disease has been reported during the year. All vessels from foreign ports have been boarded and inspected by the Medical Officer of Health. Home trading vessels were examined by the Inspector. Constant watch has been kept for plague infected rats, but none was found.

1,507 vessels entered from foreign ports and 2,657 from various parts of the coast. The work of foreign meat inspection has proved so arduous that two inspectors are now employed. Over 45 tons of imported meat were seized under the Foreign Meat and Food Regulations, 1908. Up to the present such condemned material has been buried but some other method of disposal is desirable. The Medical Officer of Health has been over to Holland to inspect the principal export slaughtering houses, and Dr. Beyer, the Chief Government Inspector of Holland, visited Harwich. As the

result the quality of the pork received has greatly improved and seizures became at once less frequent. About Christmas 2,000 turkeys were condemned and destroyed. The fruit imported has been of uniformly good quality and only two seizures were made during the year.

Importers and foreign officials have expressed the opinion that the inspecting is carried out with judgment and fairness. Friction between the officials and Railway Companies is referred to, but the Medical Officer of Health is convinced that the relations will improve year by year.

PORT OF MALDON.

Medical Officer of Health ... H. R. BROWN, M.A., M.D., C.M.

The report is printed.

No passengers, immigrants, transmigrants, cattle, meat, or rags have entered the port during the year. No rats have been found on barges from the Orwell. No infectious illness has occurred. The vessels which entered the port were 991 coastwise and 6 from foreign ports. All the latter and some of the former were inspected by the Medical Officer of Health. No sanitary defects were found.

Bradwell is the Coastguard Boarding Station, and any vessel with suspicious illness on board would be detained there pending the visit of the Medical Officer of Health. The Port Authority has the use of the Joint Isolation Hospital at Heybridge, being one of the Joint Authorities. They could also use the Small-pox Hospital at Little Totham, if plague, cholera, or small-pox occurred.

II. URBAN DISTRICTS.

BARKING.

Medical Officer of Health ... A. BYGOTT, M.D., D.P.H.

Area in acres		3,813
Population, 1901 census		21,547
,, 1910 estimated		32,502
Deaths registered in the district ...		276
Corrections ... Additions ...		57
,, ... Deductions ...		8
Nett deaths		325

	1910.	Mean 1900-9.
Nett Death-rate	9·9 ...	12·8
Infantile Mortality	97·7 ...	133
Birth-rate	27·6 ...	32·7
Cases of disease notified per 1,000 population	6·0 ...	—

The report is printed.

1. General. A portion of greater London. The ground level varies from + 6 to + 28ft. O.D. The subsoil is chiefly gravel. The population is chiefly concentrated in the north-west portion of the district. A large number of the people are employed at the Beckton Gas Works, some are engaged in agriculture. Many are employed in London. Owing to the improved train service the district is becoming more residential in character.

2. House Accommodation. A survey of the district is in progress. The Council owns 72 houses let at 5s. 6d. per week and 85 let at 6s. 6d. The demand for them is not excessive. A bye-law is required to prevent houses being erected below the level necessary for draining into the sewers. A few houses do not possess through ventilation, and the arrangements for storing food are in many cases very defective. The six common-lodging houses are very unsuitable for the purpose. A properly equipped one is much wanted.

3. Water Supply. Supplied by the South Essex Water Co. Where two families occupy one house, one family sometimes obtains water directly from the main and the other from the bath-room cistern. A few houses are supplied from standpipes. Twenty-two houses are supplied from shallow wells.

4. Milk and Food. There are 2 dairies and 46 milkshops in the district, the conditions, etc., of which is as detailed last year There were 3 slaughterhouses but one license was surrendered during the year. At the latter a number of emaciated animals were slaughtered for a London butcher, and seizures of large quantities of unsound meat took place. The licensee then surrendered his license, the London

butcher moved into an adjacent district, and was prosecuted and fined £20 and costs. Shortly afterwards he was fined £50 in a London Police Court. Many improvements in the conditions and regulations under which meat ought to be slaughtered are referred to. Considerable attention is paid to meat exposed for sale. The Tuberculosis Exhibition has directed public attention, with advantage, to the dangers of using unsound food.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. An unsuccessful attempt was made during the year to negociate with the L.C.C. for the reception of the town's sewage in their sewers. A scheme for sewering Creeksmouth has been sanctioned by the Council. W.c's are chiefly used, but there are 61 cesspools, 19 pail closets and 42 privies in outlying parts of the town. No complaint has been received about the character of the sewage effluent, or pollution of the river. The Butchers' Skin & Hide Co. had to discontinue passing an effluent into the creek owing to its objectionable character.

6. House Refuse. The dustbins in use admit of improvement. When collected the dust is deposited at a tip, a method which is a source of anxiety. Dust collection costs about £1,200 per annum. There are two large dust shoots on the Thames border, receiving refuse from London. One of these was carelessly administered. Proper care is not exercised to exclude unauthorized persons from these shoots.

7. Nuisances. There are many offensive trades in the district and the schedule has been largely added to under Sec. 51 Public Health Amendment Act, 1907, and bye-laws to regulate them are in course of preparation. A tar distilling works gives off very offensive gases, but improvements are being carried out which it is hoped will mitigate the nuisance.

8. Bye-laws. Referred to in par. (7) above.

9. Schools. The Medical Officer of Health being also School Medical Officer, all matters relating to Schools are included in a Special Report. The sanitary conveniences and water are satisfactory and in good order. Attention is directed to the existence of a fountain in which a stream of water is directed into the child's mouth, dispensing with drinking cups and the attendant risk of infection.

10. Infectious Diseases. No epidemic of any kind occurred. There is a wood and iron hospital at Upney, the administrative arrangements of which are unsatisfactory. *Vide* Section on Isolation Hospitals. Any cases of small-pox would be sent to the Dagenham Hospital. At the laboratory of the Medical Officer of Health bacteriological diagnoses are made, and a supply of diphtheria antitoxin is kept for the use of medical men. The cases of tuberculosis are well looked after and many interesting details are given. A Tuberculosis Exhibition was held in the Westbury Schools from March 13th to the 23rd and over 12,000 people visited it. The teachers and senior children from the public elementary schools attended special demonstrations. A few consumptives have been treated in a " shelter " at the isolation hospital. Dr. Bygott's views on the treatment of patients in Urban districts are referred to in the section relating to tuberculosis.

11. Further Sanitary Requirements. These are referred to in the body of the report. *Vide* (2), (6), (10).

BRAINTREE.

Medical Officer of Health ... PERCY STEVENS, L.R.C.P., M.R.C.S.

Area in acres ..	...	...	2,224
Population, 1901 census	...	...	5,330
,, 1910 estimated	...	...	5,330
Deaths registered in the district		...	68
Corrections ...	Additions	...	10
,, ...	Deductions	...	2
Nett deaths ...	...	...	76

	1910.	Mean 1900-9.
Nett Death-rate	14·2 ...	15·0
Infantile Mortality	24 ...	72
Birth-rate	23·4 ...	23·1
Cases of disease notified per 1,000 population	0·8 ...	—

The report is in manuscript, and is very brief. (The statistics are based upon a population of 5,330, but in revising this proof the Medical Officer of Health gave the population as 5,800.)

1. General. A large number of people are employed in the silk mills, at two iron works, and a brush factory.

2. House Accommodation. There is a demand for cottages but local enterprise is about to meet this, as the erection of 46 cottages is to be proceeded with, and land for building purposes is about to be offered for sale. Steps are being taken to get 32 of the worst existing cottages placed in good habitable repair.

3. Water Supply. The water is of excellent quality. A low level reservoir is being constructed.

4. Milk and Food. Cowsheds and dairies have been inspected and are kept in a cleanly state, though some do not comply with modern requirements. Bakehouses were found satisfactory.

5. Sewerage, Excrement Disposal and Pollution of Rivers. Pail closets are being converted into w.c's and a new sewer laid in Rose Hill and Chapel Hill. The new sewage works were completed in September last and are on most modern bacteriological lines. The condition of the river has improved since the works were opened.

6. House Refuse. Collected by the Council's men in covered vans.

7. Nuisances. 312 cottages have been inspected.

8. Bye-laws. The existing bye-laws relate to new streets and buildings, nuisances, and common lodginghouses.

9. Schools. The sanitary arrangements and water supply are quite satisfactory.

10. Infectious Diseases. Only four cases occurred during the year. There is a Joint Hospital receiving cases from the Urban and Rural Districts. Phthisis is voluntarily notifiable and where patients are known to have occupied rooms these are afterwards disinfected.

11. Further Sanitary Requirements.

BRENTWOOD.

Medical Officer of Health ... S. FRAZER, L.R.C.P., L.R.C.S. ED.

Area in acres	...	...	460
Population, 1901 census		...	4,932
,, 1910 estimated		...	8,105
Deaths registered in the district		...	72
Corrections ...	Additions	...	13
,, ...	Deductions	...	12
Nett deaths ...	...	...	73

	1910.		Mean 1900-9.
Nett Death-rate	9·0	...	10·0
Infantile Mortality	44·4	...	90·4
Birth-rate	16·6	...	18·1
Cases of disease notified per 1,000 population	2·5	...	—

The report is printed. The population includes 1,360 persons living in institutions. The birth-rate and death-rate are so low as to indicate that they are calculated on too large a population.

1. General This Urban district only includes about half the town of Brentwood, and the area ought to be extended. A large number of persons whose occupations are in London reside here. Brewing, the manufacture of agricultural implements, and agriculture are the chief industries.

2. House Accommodation. Has vastly improved of recent years and is now fairly satisfactory and is keeping pace with the increase in population. Ten houses have been represented as unfit for habitation, but no closing orders have been made.

3. Water Supply. From the South Essex Water Co. and is now softer (12°), the Company being under an obligation to soften. There has been no cause for complaint.

4. Milk and Food. There are three dairies, one of which is not entirely satisfactory. There are eight slaughterhouses, all regularly inspected. No food has been seized, nor any tuberculous meat discovered.

5. Sewerage, Excrement Disposal and Pollution of Rivers. There are few hand-flushed closets and only two privies. With these exceptions all the houses have modern w.c's. The sewage works are controlled by a Joint Committee. They are now being modernised, and the work is progressing satisfactorily. (Meanwhile some pollution of the Ingrebourne Brook continues.—J.C.T.)

6. House Refuse. A contractor removes this weekly, finding his own dumping ground outside the district. Up to the present no difficulties appear to have arisen, but sooner or later these are anticipated and the provision of a dust destructor will have to be considered.

7. Nuisances. Of 610 nuisances dealt with only 46 were the subject of complaint. 535 were abated and the remainder are receiving attention. The Inspector, who is also the Surveyor, made about 800 re-visits. Only one prosecution was necessary.

8. Bye-laws. All the bye-laws are modern. They relate to nuisances, lodging-houses, new streets and buildings, slaughterhouses, and dairies and cowsheds. No others are needed at present.

9. Schools. Under control of County Council. The sanitary arrangements and the water supplies are satisfactory.

10. Infectious Diseases. Only 20 cases occurred during the year. By arrangement cases are sent to the hospital of the Billericay District, but the accommodation is inadequate. There is no fixed disinfector. Disinfection is carried out by a spray and Alformant lamp, and bedding treated in a portable disinfector. Antitoxin is supplied by the Council. Tuberculosis is voluntarily notifiable. No case or death from this disease was notified during the year.

11. Further Sanitary Requirements. Provision of an isolation hospital, of an ambulance, and of a dust destructor. These "can only be brought to a successful issue by enlargement of the area of the Brentwood Urban District, and so do away with the dual control and the confusion which accompanies such an arrangement."

BRIGHTLINGSEA.

Medical Officer of Health ... E. P. DICKIN, M.D., C.M.

Area in acres				2,867
Population, 1901 census				4,501
„ 1910 estimated				5,074
Deaths registered in the district ...				44
Corrections ...	Additions ...			1
„ ...	Deductions ...			0
Nett deaths				45

	1910.		Mean 1900-9.
Nett Death-rate	8·9	...	12·3
Infantile Mortality	12	...	85
Birth-rate	16·3	...	21·7
Cases of disease notified per 1,000 population	1·0	...	—

The report is printed.

1. General. The town is on a peninsula, the higher part being on gravel, the lower on clay. There is some marsh land, liable to floods. The urban part of the district is on the slope to the waterside in the Colne estuary. Most of the men are employed on yachts, or in occupations connected with the sea. A large number of women are employed in tailoring in their own homes. A new industry has recently sprung up here, that of "sprat pickling."

2. House Accommodation. There is no lack of suitable houses at reasonable rents. There are no long rows of houses and they have ample light and air.

3. Water Supply. There is a public supply owned by the Council derived from two bores in the chalk. The supply is constant and averages 12·6 gallons per head per day of the estimated population. Some difficulty has arisen in getting the water

laid on. Apparently the owners of shallow wells are under the impression that unless some disease can actually be traced to the use of the water from a particular well it must necessarily be wholesome. The hardness of the water from the chalk "prejudices the public in favour of surface well water."

4. Milk and Food. The milk supply is good. Dairies and cowsheds, with one exception, satisfactory. Slaughterhouses regularly inspected, and the meat supply is good. No tubercular meat has been discovered. The Medical Officer of Health deals fully with an allegation that two cases of typhoid fever were due to eating Brightlingsea oysters. In both instances the oysters were of Spanish origin, and he thinks the bacteriology of these bivalves requires investigating.

5. Sewerage, Excrement Disposal and River Pollution. Pit and pail closets are in use outside the area served by the sewers. There are approximately 443 tank flushed closets and 591 slop or hand-flushed w.c's. The sewage is treated with alumino ferric and after settling it is discharged on the ebb tide. The nearest oyster laying to the outfall is 800 yards up the stream.

6. House Refuse. This is removed weekly by a contractor. It is taken to a farm and burnt.

7. Nuisances. Twenty-two nuisances were detected and all abated. 346 cottages were inspected.

8. Bye-laws. Those in force relate to new streets and buildings, nuisances, and slaughterhouses, and regulations have been adopted for dairies and cowsheds, preventing waste of water, etc. Parts of the Infectious Diseases Prevention Act and the Public Health Amendment Act (1890) have also been adopted.

9. Schools. These are in a satisfactory sanitary condition.

10. Infectious Disease. Only five cases were notified during the whole of the year. There is no permanent hospital or disinfector. Tent hospitals are kept in readiness for any emergency and a retaining fee is paid for the use of a suitable piece of land. Rooms are sprayed with a solution of formalin.

11. Further Sanitary Requirements. Those mentioned are "provision of washing utensils in cowsheds" and improving certain roads and footpaths.

BUCKHURST HILL.

Medical Officer of Health ... C. R. DYKES, M.R.C.S., L.R.C.P.

Area in acres ...	...	...	873
Population, 1901 census	...	...	4,786
„ 1910 estimated	...	...	5,350
Deaths registered in the district		...	57
Corrections ...	Additions	...	4
„ ...	Deductions	. .	6
Nett deaths ...	...	...	55

	1910.	Mean 1900-9.
Nett Death-rate	7·0 ...	11·1
Infantile Mortality	28·5 ...	96·8
Birth-rate	19·6 ...	21·3
Cases of disease notified per 1,000 population	4·6 ..	—

The report is printed.

1. General. The district is on a ridge of land between the valleys of the Roding and Ching, but chiefly in the Roding valley. It is almost entirely residential in character.

2. House Accommodation. Building is progressing on the Luctons Estate. Many cottages have been placed in thorough repair. No action has been taken under the Housing of the Working Classes Act.

3. Water Supply. Water is supplied by the Metropolitan Water Board from deep wells at Waltham Abbey and Chingford. The water is hard, but the supply is constant and adequate. All but four houses have water laid on.

4. Milk and Food. Bakehouses, dairies, and slaughterhouses are regularly inspected. Cowkeepers are grooming their cows and cleansing the udders before milking. No tuberculous food has been discovered.

5. Sewerage, Excrement Disposal and River Pollution. The sewage disposal works give very satisfactory results. The High Road sewer has been relaid.

6. House Refuse. This is removed by the Council's men. Only one complaint has been made during the year.

7. Nuisances. 41 of the 44 nuisances discovered have been dealt with.

8. Bye-laws.

9. Schools. Certain improvements have been completed and the sanitary arrangements are now good.

10. Infectious Diseases. There are satisfactory arrangements for disinfection. Cases are sent to the Joint Hospital at Waltham Abbey. Phthisis is not notifiable (save in the case of poor persons). Premises which have been occupied by phthisical patients are disinfected.

11. Further Sanitary Requirements.

BURNHAM-ON-CROUCH.

Medical Officer of Health ... W. C. P. SMITH, M.R.C.S., L.R.C.P., D.P.H.

Area in acres ...	...	...	5,523
Population, 1901 census	...	...	2,918
,, 1910 estimated ...		...	3,326
Deaths registered in the district		...	36
Corrections ...	Additions	...	?
,, ...	Deductions	...	?
Nett deaths ...	...	...	36

	1910.	Mean 1900-9.
Nett Death-rate	10·8 ...	11·7
Infantile Mortality	42·8 ...	70·3
Birth-rate	21·0 ...	24·6
Cases of disease notified per 1,000 population	5·4 ...	—

The report is printed. The statistics are uncorrected.

1. General. On the banks of the River Crouch. A good deal of the area is below the level of high water. Soil—gravel and sand overlying London clay. Occupation of inhabitants—oyster dredging, yachting and agriculture.

2. House Accommodation. Reasonably good. Houses renting at from £20 upwards badly needed. New buildings controlled by bye-laws.

3. Water Supply. The public supply is from a well some 400 feet deep and from subsoil tube wells. The water from both sources is wholesome, and abundant though intermittent. An extension of the mains to Ostend has been sanctioned by the Local Government Board. Increased pressure is desirable for the houses in the higher part of the town.

4. Milk and Food. Dairies and cowsheds are frequently inspected and found clean and in good sanitary condition. The slaughterhouses are inspected. One tuberculous carcass was condemned.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. There are 29 pail closets which are emptied once or twice weekly. A large number of w.c.'s are without flushing apparatus. The sewage is treated on coke bacteria beds, but these are barely adequate. The effluent is largely diluted with marsh water before it enters the Crouch.

6. House Refuse. Scavenging is done by contract, the dustbins being emptied weekly.

7. Nuisances. 54 nuisances were detected and 53 abated. 117 cottages were inspected.

8. Bye-laws. There are building bye-laws (and possibly others—J.C.T.).

9. Schools. There are two schools. Both have a good water supply and both are in a satisfactory sanitary condition.

10. Infectious Diseases. There has been no epidemic. A cottage is retained for isolation purposes, and when required in December for a scarlet fever case it was found to be in such a damp condition as to be uninhabitable. Some better arrangement is required. Circulars *re* tuberculosis have been distributed. No case came to the knowledge of the Medical Officer of Health during the year.

11. Further Sanitary Requirements. *Vide* pars. 5 and 10.

CHELMSFORD.

Medical Officer of Health ... H. W. NEWTON, M.R.C.S., L.R.C.P., D.P.H.

Area in acres	3,015
Population, 1901 census	12,580
,, 1910 estimated	17,800
Deaths registered in the district ...	202
Corrections ... Additions ...	2
,, ... Deductions ...	34
Nett deaths	170

	1910.	Mean 1900-9.
Nett Death-rate	9·55 ...	12·1
Infantile Mortality	50·3 ...	87·9
Birth-rate	19·0 ..	23·6
Cases of disease notified per 1,000 population	2·2 ...	—

The report is printed.

1. General.

2. House Accommodation. The demand for houses is now considerably greater than the supply. There is an increased demand for cottages due to the extension of Messrs. Hoffmann's works. Further extensions are contemplated when 1,000 more men may be employed. If so, a large number of houses must be erected to accommodate them, as there is probably not an empty cottage in the borough. 70 cottages were erected during the year. The lack of baths is lamented.

3. Water Supply. The quality of the public supply is good (judging from the chemical analyses), but the quantity is barely sufficient for present requirements and there is no reserve. The demand is increasing and the waste now very small. It is proposed at once to sink another deep well. At present all parts of the borough have a full constant service.

4. Milk and Food. Dairies, bakehouses, slaughterhouses, etc., are regularly visited. The provision of a public abattoir is advocated. There is one underground bakehouse. The difficulty experienced in getting cows and cowsheds kept clean is commented upon, and the appointment of a Veterinary Inspector for the borough and adjoining Rural District is urged. A veterinary surgeon regularly inspects the cattle in the weekly market, and as a consequence the number of diseased cattle exposed has decreased. Any diseased animal may be slaughtered under supervision, or if sent away the Medical Officer of Health for the district into which it is taken is communicated with. Two animals so condemned have been slaughtered during the year.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Sewers have been extended where necessary. Save in regard to ventilation the drainage throughout the borough is in a very satisfactory condition. Improvements have been made at the sewage farm, which the Surveyor says will enable it to deal efficiently with the sewage. The pollution of the Chelmer is referred to at some length, and a chemical and bacteriological examination was made of the water when in flood. The analyst wisely says: "a good deal of cattle manure would be washed down into the river during such weather as we have been having." Of course, at this time, the river was

grossly polluted. Sources of pollution within and without the borough are referred to. The Medical Officer of Health is strongly of opinion that "the County Council should, without delay, prevent such a serious state of pollution." The water from the river is used to supply the public swimming bath, and the sand filter which has been hitherto used is of little service.

6. House Refuse. The removal is undertaken by the Council and is not so frequent as it should be. The danger of such accumulations, and especially as the breeding ground for flies, is pointed out. A destructor is the only means of properly dealing with house refuse. A private individual proposes to erect one just outside the borough boundary, and the probability of its being a nuisance to the houses in the adjacent part of the borough is recognised.

7. Nuisances. The two offensive trades in the borough have been frequently inspected, also the knacker's yard. No nuisance of a serious character has been reported during the year and no legal proceedings have been necessary.

8. Bye-laws.

9. Schools. The general condition is very good, but cloak rooms and playgrounds are not all adequate. The provision of school baths is advocated.

10. Infectious Diseases. There was a small epidemic of diphtheria in the autumn possibly due to infected milk. A ward block for typhoid patients is required at the Joint Hospital. Reference is made to the County Association for the Prevention of Tuberculosis, and the provision of a central institution is strongly advocated (1) for the reception and probable cure of early cases, (2) for the education of those admitted in regard to the disease from which they are suffering. He strongly urges the establishment of sanatoria rather than supplying individual shelters. The provision of shelters could be left to the local authorities. The death-rate from phthisis in the borough appears to be slowly declining.

11. Further Sanitary Requirements. (1) An additional source of water supply. (2) A dust destructor and more frequent removal of house refuse. (3) Purification of the Chelmer. (4) Provision for enteric fever. (5) Veterinary inspection of milch cows. (6) Erection of cottages.

CHINGFORD.

Medical Officer of Health ... GEO. W. FULCHER, M.D., C.M.

Area in acres ...	...	...	2,807
Population, 1901 census	...	...	4,372
,, 1910 estimated	...	...	8,310
Deaths registered in the district		...	62
Corrections ...	Additions	...	10
,, ...	Deductions	...	15
Nett deaths ...	...	...	—

	1910.	Mean 1900-9.
Nett Death-rate	6·85 ..	10·0
Zymotic Death-rate	·5 ...	1·0
Infantile Mortality	62·5 ...	104·
Birth-rate	21·2 ...	24·1
Cases of disease notified per 1,000 population	4·2 ...	6·7

The report is printed.

1. General. Mostly on an elevated plateau near Epping Forest. Building is proceeding on the southern portion. On the northern and higher part a number of villa residences have been recently erected. A good residential district.

2. House Accommodation. Adequate. Some old houses of inferior structure. New buildings supervised by the Surveyor.

3. Water Supply. From the Metropolitan Water Board's works. "Though frequently containing sedimentary matter, is wholesome."

4. Milk and Food. Frequently inspected. Generally satisfactory.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. The sewers are to be extended to the low-lying portions of the district now being built upon. This will abate certain cesspool nuisances about which complaints have been made. The sewage "is treated bacterially, with satisfactory results, the effluent causing no pollution."

6. House Refuse. "Removed weekly by a contractor, whose service is efficient."

7. Nuisances. The G.E.R. have paid no attention to complaints about their premises and carriages. Eighty nuisances appear to have been detected and 65 abated. Two successful prosecutions appear to have been undertaken.

8. Bye-laws.

9. Schools. The two schools are in a satisfactory sanitary condition. A recommendation to the Managers, that from Saturday noon to Monday the windows should be kept open, was not complied with.

10. Infectious Diseases. Notified cases visited. Removed, if necessary, to conjoint hospital. Disinfection after removal or recovery. Applies to tuberculosis also. Difficulty referred to of getting into a hospital a patient suffering from fraematic erysipelas.

11. Statistics. The mortality and sickness statistics are very favourable. The difficulty of estimating the population, however, renders them less reliable than they otherwise would be.

CLACTON-ON-SEA.

Medical Officer of Health ... J. W. COOK, M.D.

Area in acres		...	4,074
Population, 1901 census ...		...	7,453
,, 1910 estimated ...		...	8,157
Deaths registered in the district		...	102
Corrections ...	Additions	...	1
,, ...	Deductions	...	8
Nett deaths ...	...	...	95

	1910.		Mean 1900-9.
Nett Death-rate	11·6	...	12·3
Infantile Mortality	54	...	104
Birth-rate	22·55	...	23·8
Cases of disease notified per 1,000 population	4·7	...	—

The report is printed.

1. General. A populous seaside resort, with more sunshine and less rainfall than any other in England. Promenade 2 miles long.

2. Housing Accommodation. Apparently ample. The modern houses are "too costly for working men," they therefore "pay their rent by letting in the summer."

3. Water Supply. The works belong to the District Council. Water is derived from the subsoil at Great Bentley, 12 miles away, and is filtered before being distributed. A further source of supply will soon be needed.

4. Milk and Food. All places where food is prepared or produced are well supervised, and a veterinary surgeon can be called in when deemed necessary to examine cows. Some fish was seized and destroyed.

5. Sewerage, Excrement Disposal, and River Pollution. W.c.'s are exclusively used in the sewered area. Elsewhere there are cesspools which ought to be emptied by the Council's men. The sewage is discharged into the open sea. There is only one small stream in the district, and it is not polluted by any drainage from Clacton.

6. House Refuse. This is removed weekly by the Council's men. Oftener if required. It is deposited outside the town and a contractor sorts it and burns some portion. The heap is rather near the hospital. A destructor is advocated and if placed near the electricity works might be a source of economy.

7. Nuisances. These are speedily abated when detected. "Unbuilt open spaces" are now being enclosed and this prevents their being used as rubbish tips.

8. Bye-laws. For new streets and buildings and other purposes. Certain sanitary powers are conferred by a Local Act. Bye-laws for "houses let in lodgings" would be useful.

9. Schools. The sanitary condition is satisfactory. The adoption of Secs. 57 and 58 of the Public Health Amendment Act, 1907, would be of considerable benefit as there would then be some control over the numerous private schools.

10. Infectious Disease. These cases are adequately dealt with. There is an isolation hospital, disinfector, etc. Phthisis is not notifiable. An institution for isolating such cases would be useful. The County scheme for providing shelters it is hoped will be a success. Convalescent patients often introduce disease. No disease has occurred during the year attributable to shell-fish.

11. Further Sanitary Improvements.

COLCHESTER.

Medical Officer of Health ... W. F. CORFIELD, M.B., B.S., D.P.H.

Area in acres					11,324
Population, 1901 census					38,373
,, 1910 estimated					42,275
Deaths registered in the district ...					551
Corrections ...	Additions ...				3
,, ...	Deductions ...				43
Nett deaths					511
			1910.		Mean 1900-9.
Nett Death-rate			12·0	...	13·4
Infantile Mortality			90	...	114
Birth-rate			22·6	...	24·8
Cases of disease notified per 1,000 population			3·6	...	—

The report is printed. The estimated population includes the garrison and families living in the barracks.

1. General.

2. House Accommodation.

3. Water Supply. The borough supply is examined regularly and always proves satisfactory. Eight wells were closed and the public supply laid on.

4. Milk and Food. There are 24 herds of milk cows in the district. The cows and cowsheds are not always as clean as could be desired. No food has been seized or destroyed. The Medical Officer of Health is also Public Analyst. During the nine months reported upon 64 samples were taken and 6 found adulterated. There were 4 successful prosecutions. Two vendors of milk with a portion of the fat abstracted were "warned."

5. Sewerage, Excrement Disposal and River Pollution.

6. House Refuse.

7. Nuisances. Apparently 811 nuisances were detected and 683 abated. 3,154 houses and 434 workshops were inspected.

8. Bye-laws.

9. Schools. At one school the water supply appears to be unsatisfactory. Details are said to be contained in a separate report upon the Medical Inspection of School Children.

10. Infectious Diseases. Three cases of small-pox occurred early in the year. There is a public health laboratory and an isolation hospital. This has just been enlarged. There are 75 beds available and 4 diseases can be dealt with at the same time. 58 cases of phthisis were notified, 47 voluntarily, and 11 under the Local Government Board Regulations. "All persons notified are visited and kept under observation and advice is given them how to avoid spreading the infection, spitting flasks and disinfectants being supplied from the Public Health Offices."

11. Further Sanitary Requirements.

EAST HAM.

Medical Officer of Health ... W. BENTON, M.R.C.S., D.P.H.

Area in acres	3,326
Population, 1901 census	96,018
,, 1910 estimated	156,208
Deaths registered in the district ...	1,069
Corrections ... Additions ...	297
,, ... Deductions ...	36
Nett deaths	1,330

	1910.	Mean 1900-9.
Nett Death-rate	8·5 ...	12·0
Infantile Mortality	90 ...	126
Birth-rate	22·1 ...	30·7
Cases of disease notified per 1,000 population	3·9 ...	—

The report is printed.

1. General. A rapidly growing suburb of East London. The population is probably over-estimated, but in any case the growth has been phenomenal.

2. House Accommodation. The Council owns 220 artizan dwellings. A large number of persons work at the Docks and Beckton Gasworks. Under the building bye-laws no premises can be occupied until certified fit for habitation. 555 premises were so certified during the year. Under the East Ham Improvement Acts 100 ft. of paving can be insisted upon for all houses, and this power has been of enormous benefit. Overcrowding is becoming less common.

3. Water Supply. Water supplied by the Metropolitan Water Board, and is of excellent purity and constant in pressure. Some drinking water cisterns are found without suitable covers and in unsatisfactory positions. These are being dealt with as discovered. A draw off tap on the rising main is insisted upon for all new houses.

4. Milk and Food. All places where food is prepared are kept under supervision. Markets and shops are also inspected. Sixteen consignments of unsound food were condemned and destroyed. Two prosecutions followed the seizure of diseased carcases at private slaughterhouses and heavy penalties were inflicted. A public abattoir is advocated. "An advantage in detecting diseased carcases would be made if compulsory for every slaughterman to give notice to the Local Inspector and obtain a permit before killing. This would (in my opinion) eliminate from the trade the nefarious dealer in old 'screw' cows, and do no injustice to the honest trader." There are 15 slaughterhouses in the district. There is a veterinary inspector.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Water closets are exclusively used, and surface water is, as far as possible, kept out of the sewers. The district being flat the sewage reaches the works at a very low level. It is pumped up, treated with lime and alumina, and the clarified effluent percolated through bacteria beds. The effluent is discharged into Barking Creek. (It is generally of a very satisfactory character.—J.C.T.)

6. House Refuse. 26 men are employed in collecting house refuse, of these 16 are engaged by contractors. The collection is weekly. The Inspector furnished a special report on the subject, from which it appears that the system adopted is economical and satisfactory. The refuse is destroyed in a Meldrum's Destructor and the heat produced is applied to the generation of steam for pumping sewage.

7. Nuisances. The sanitary staff includes the Chief Sanitary Inspector (Mr. Banks), 3 Inspectors, a lady Health Visitor, a Veterinary Inspector, and 3 Clerks. The Chief Inspector furnishes an excellent report on the work done in his department, which included the inspection of 4,867 premises and the detection of 6,769 nuisances.

8. Bye-laws. The report contains a list of Acts of Parliament, Bye-laws, and Regulations adopted.

9. Schools. This being a borough, the Medical Officer of Health, with his Deputy, undertake the whole of the School work. There are 21 schools. The premises will be fully examined during the present year.

10. Infectious Diseases. There is a bacteriological laboratory for diagnostic purposes, an isolation hospital with disinfector, etc. 56 Poor Law cases of phthisis were notified. Medical men are supplied with sputa outfits for bacteriological purposes. All cases are visited, instruction given, pocket sputa flasks supplied, etc. The Health Visitor is very useful in these cases. 14 phthisical patients were taken into the isolation hospital, but they were in too advanced a stage for much benefit to accrue.

11. Further Sanitary Requirements. A public abattoir. The Inspector thinks a larger staff is required, so that more systematic inspections of houses can be undertaken.

EPPING.

Medical Officer of Health ... TREVOR FOWLER, L.R.C.P., S.I., D.P.H.

Area in acres	...	...	1,956
Population, 1901 census	...	...	3,789
„ 1910 estimated	...	...	4,530
Deaths registered in the district		...	80
Corrections ...	Additions	...	1
„ ...	Deductions	...	33
Nett deaths	...	...	48

	1910.	Mean 1900-9.
Nett Death-rate	10·5 ...	12·3
Infantile Mortality	54·3 ...	103·7
Birth-rate	20·3 ..	22·7
Cases of disease notified per 1,000 population	4·7 ...	—

The report is printed.

1. General. The town stands at an elevation of 360 ft. above sea level. The subsoil is London clay with numerous pockets of gravel and boulder clay. The only

industry, apart from agriculture, is an iron foundry employing about 100 hands. The district is chiefly residential.

2. House Accommodation. There is a great want of healthy and suitable cottages for the labouring classes. Some old cottages have been closed and attempts made to render others habitable. But some of the rotten old structures are beyond repair. Improvements under the new Housing and Town Planning Act are expected.

3. Water Supply. From the Herts and Essex Co. The supply is good.

4. Milk and Food. Dairy farms and milk shops are satisfactory. No tuberculous cows have been discovered, but there is no veterinary inspection. The four slaughter-houses are supervised. The carcass of a tuberculous cow was found in one; it was seized and destroyed.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Practically all the houses are connected with the sewers, which have four different outfalls. The sewage is satisfactorily treated.

6. House Refuse. There is a fortnightly removal by contract. Weekly removal is advocated.

7. Nuisances. 149 cottages were inspected. 67 nuisances were detected and 58 abated.

8. Bye-laws. There are bye-laws with respect to slaughterhouses (and doubtless others—J.C.T.)

9. Schools. There are only two. The drainage of one has practically been reconstructed during the year. The public water supply is laid on to both.

10. Infectious Diseases. The boys' department of one school had to be closed for two weeks on account of an outbreak of diphtheria. There is an isolation hospital with disinfector. There is no arrangement for the notification of phthisis beyond the Local Government Board order. Neither sanatoria nor tuberculin dispensaries are wanted here, the chief cause of the disease is the insanitary houses in which so many people live.

11. Further Sanitary Improvements.

FRINTON-ON-SEA.

Medical Officer of Health ... H. W. GODFREY, M.D.

Area in acres		...	403
Population, 1901 census ...		...	644
,, 1910 estimated ...		...	2,000
Deaths registered in the district		...	11
Corrections ...	Additions	...	—
,, ...	Deductions	...	—
Nett deaths		...	11

	1910.		Mean 1900-9.
Nett Death-rate	5·5	...	—
Infantile Mortality	91	...	—
Birth-rate	11	...	—
Cases of disease notified per 1,000 population	·5	...	—

The report is printed. The population is doubtful and the district so small that the statistics must be regarded as of little value. Since it became an Urban District in 1903 the death-rate has varied from 4·4 to 12·3 and the infantile mortality from 0 to 91.

1. General. Situated on the coast, 40 feet above sea level. It is essentially a residential district. The few members of the working class are chiefly engaged in building operations.

2. House Accommodation. Adequate. 30 new houses erected during the year.

3. Water Supply. Water is derived from the mains of the Tendring Hundred Water Co. and the supply during the year has been regular, adequate, and of good quality.

4. Milk and Food. There are two dairies in the district and two bakehouses, but no slaughterhouse. Model Regulations for Dairies and Cowsheds have just been adopted.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Sewers and drains satisfactory. Sewage discharged into the sea. There is no river to pollute.

6. House Refuse. Removed by a contractor twice weekly during the season, and weekly at other periods. It is deposited outside the district.

7. Nuisances. Tipping rubbish on vacant building land and keeping poultry in too confined areas have given rise to trouble. Few other nuisances have occurred.

8. Bye-laws. The sanitary provisions of the Public Health Acts Amendment Act, 1907, have been adopted, and Regulations under the Dairies and Cowsheds Order.

9. Schools. The school is quite modern and in a satisfactory sanitary condition.

10. Infectious Diseases. Only one case of notifiable disease occurred. There is no isolation hospital. Premises are disinfected when necessary. When cases of phthisis arise disinfection of bedding and rooms is recommended.

11. Improvements Required. Provision of a cemetery and making up of a road.

GRAYS.

Medical Officer of Health ... J. A. WARD, M.D.

Area in acres		...	1,359
Population, 1901 census ...		...	13,834
,, 1910 estimated ...		...	15,750
Deaths registered in the district		...	118
Corrections ...	Additions	...	28
,, ...	Deductions	...	1
Nett deaths		...	145

	1910.	Mean 1900-9.
Nett Death-rate	9·1	11·4
Infantile Mortality	58	101
Birth-rate	28	29·6
Cases of disease notified per 1,000 population	3·7	—

The report is printed.

1. General. The inhabitants are principally of the working class, employed for the most part at Tilbury Docks and the cement works.

2. House Accommodation. 22 houses were erected during the year. All erections are supervised by the Surveyor. Notices have been served to close 49 houses in East and Bond Streets.

3. Water Supply. The supply is from the South Essex Co. and was constant and plentiful. The average hardness was 11°. On several occasions turbid water was distributed, due to deposited lime and rust, but a representation to the Company has had a beneficial effect.

4. Milk and Food. There are now 5 slaughterhouses, 32 milkshops, and 1 cowkeeper. All premises have been inspected. No diseased food was discovered. Two large consignments of fish were voluntarily surrendered for destruction.

5. Sewerage, Sewage Disposal, and Pollution of Rivers. There are no complaints about drains, sewers, or sewage works, but the works are becoming insufficient to cope with the increasing volume of sewage, and the Council are considering what steps shall be taken to meet present requirements.

6. House Refuse. Collected weekly in the Council's carts and burnt in a destructor. The 3,000 tons burnt sufficed to produce 20 per cent. of the heat needed at the public electric station.

7. Nuisances. A complete house-to-house inspection has been made, when 502 nuisances were detected and 501 abated. A serious nuisance arose from the deposition of London house refuse on land near the river. The owners ultimately agreed to sign a bond not to deposit any more offensive matter after March, 1911, and in the meantime to diminish the nuisance by covering over the deposit with earth or other deodorants.

8. Bye-laws.

9. Schools. No cause for complaint was discovered with regard to cleanliness and sanitary conditions.

10. Infectious Diseases. The decline in the prevalence of notifiable disease still continues. Two cases of small-pox occurred. All cases are promptly dealt with. There are well equipped hospitals, one for small-pox and the other for other infectious diseases. Both possess disinfectors. There are probably few unnotified cases of phthisis in the district. In doubtful cases bacteriological diagnoses are made at the expense of the Council. Spitting flasks and disinfectants are supplied. A central county sanatorium is advocated.

11. Further Sanitary Requirements. Enlargement of the sewage works.

The Early Notification of Births Act has been adopted and a Lady Visitor appointed, who calls upon most of the mothers.

HALSTEAD.

Medical Officer of Health ... C. GORDON ROBERTS, M.B.

Area in acres	647
Population, 1901 census	6,073
,, 1910 estimated	6,100
Deaths registered in the district ...	103
Corrections ... Additions ...	1
,, ... Deductions ...	13
Nett deaths	91

	1910.	Mean 1900-9.
Nett Death-rate	14·9 ...	15·0
Infantile Mortality	76·2 ...	119·1
Birth-rate	17·2 ...	21·2
Cases of disease notified per 1,000 population	1·3 ...	—

The report is printed.

1. General. There is an iron foundry and a silk factory in the district employing many hands.

2. House Accommodation. There is a general want of cottages with three or more bedrooms. It is suggested that landlords should convert two houses into one. There is a group of six back-to-back cottages which admit of great improvement.

3. Water Supply.

4. Milk and Food. There are 2 dairies, 2 milkshops, and 2 cowkeepers. All premises are in fair condition. Bakehouses and slaughterhouses are also inspected. The only foods referred to are unsuitable patent foods for children. The Medical Officer of Health thinks these should be registered and standardised.

5. Sewerage, Excrement Disposal, and River Pollution. About two-thirds of the scheme for the more efficient treatment of the sewage at the sewage works has now been carried out. The lower part of the farm has been cleared of sludge and dug over. The surface water has been excluded from the Sudbury Road sewer to reduce the quantity of storm overflow water.

6. House Refuse.

7. Nuisances. 124 nuisances were discovered and 92 abated. 287 cottages were inspected.

8. Bye-laws.

9. Schools.

10. Infectious Diseases. Only 8 notifiable cases occurred during the year. There is a small and properly equipped isolation hospital. A number of rats were caught and submitted to examination, but the plague bacillus was not discovered. Phthisical patients are visited and advised. After death or removal disinfection is offered. Two beds (not very suitable) are reserved at the Workhouse Infirmary for consumptive patients.

11. Further Sanitary Requirements.

HARWICH.

Medical Officer of Health ... H. GURNEY, L.R.C.P., M.R.C.S.

Area in acres				1,541
Population, 1901 census				10,079
,, 1910 estimated				11,522
Deaths registered in the district ...				117
Corrections ... Additions ...				3
,, ... Deductions ...				0
Nett deaths				120
		1910.		Mean 1900-9.
Nett Death-rate		10·4	...	12·0
Infantile Mortality		79·6	...	108
Birth-rate		27·2	...	29
Cases of disease notified per 1,000 population		3·0	...	—

The report is type-written.

1. General.

2. House Accommodation. Certain streets and courts are said to require inspection.

3. Water Supply. From the mains of the Tendring Hundred Water Co. The supply maintains its high standard of purity.

4. Milk and Food. The milk supply is extremely good. Very little is sold from shops. The cowsheds all conform to the bye-laws. It is suggested that the Port Meat Inspectors be engaged to inspect the meat sold in the borough. Veterinary Inspection of cows is advocated

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Upper Dovercourt is, at length, sewered, and septic tanks and filters have been provided. Many houses have already been connected. The effluent produced by the filters is clear and free from smell. The high level sewer overflows in time of heavy rainfall. The matter is receiving attention. The ventilation of the sewers is being improved.

6. House Refuse.

7. Nuisances. The only reference is to house drains, many of which have apparently been found defective and re-laid.

8. Bye-laws.

9. Schools. Being a borough, the school children are inspected by the Medical Officer of Health as School Inspector. The sanitary condition of the premises is not referred to.

10. Infectious Disease. Nine cases of typhoid fever occurred during the year. There is an isolation hospital with 24 available beds. Phthisis is not notifiable, but known cases are visited and valuable assistance appears to have been rendered in two cases.

11. Further Sanitary Requirements. Veterinary inspection of milch cows. Inspection of meat. Ventilation of certain sewers.

ILFORD.

Medical Officer of Health ... C. F. STOVIN, M.A., L.S.A., D.P.H.

Area in acres		8,496
Population, 1901 census		41,234
,, 1910 estimated		80,522
Deaths registered in the district ...		772
Corrections ... Additions ...		102
,, ... Deductions ...		273
Nett deaths		601

	1910.	Mean 1900-9.
Nett Death-rate	7·9 ...	9·7
Infantile Mortality	73·8 ...	101·5
Birth-rate	22·2 ...	27·2
Cases of disease notified per 1,000 population	4·0 ...	—

The report is printed.

1. General. A suburb of London chiefly inhabited by people requiring houses at from £20 to £40 annual rental, and within easy distance of their offices, etc., in London. Dr. Barnardo's Village Home, the Claybury Asylum, and West Ham Asylum are in this district.

2. House Accommodation. As building proceeds apace and nearly all the houses were built under supervision and in compliance with bye-laws, the supply of houses, speaking generally, is sufficient, and the character satisfactory.

3. Water Supply. The district is practically divided by the Cranbrook Road into two areas of water supply, the portion to the north-west being supplied by the Metropolitan Water Board, and the remaining area by the South Essex Water Co. The rural part of the district contains a few houses still supplied from shallow wells, but these are gradually being reduced in number. The water supplied by the two authorities has been abundant and good.

4. Milk and Food. There are 52 dairies and milkshops and 11 cowsheds registered. Taken as a whole they are satisfactory. One dairyman is a source of trouble, and a sample of his milk proving unsatisfactory, his cows were examined by a veterinary surgeon, who found one or two with advanced mastitis. The cows were afterwards disposed of and disappeared from the district. *Vide* section relating to milk. Several other samples of milk were examined bacteriologically and found satisfactory. There are 3 slaughterhouses. They are effectively supervised. One butcher was found killing sheep in his coach-house, and upon being summoned was fined £1 and costs. Another butcher was fined £10 for having in his possession the carcass of an animal seriously affected with tuberculosis. Other shops at which articles of food are sold are visited and a number of seizures of unsound food was made. 102 samples were taken under the Food and Drugs Act; 5 summonses were taken out and penalties inflicted in 4 cases.

5. Sewerage, Excrement Disposal and Pollution of Rivers. The water carriage system is general. During the year sewer extensions have been carried out. At the

sewage works the sewage is practically covered whilst in the tanks and on the bacteria beds, and since this was done the complaints of "smells" have entirely ceased. The effluent is discharged into the Thames below Barking.

6. House Refuse. Scavenging is undertaken by the Council and the collection is weekly. The refuse is tipped in a gravel pit, which is getting full. During the year 15,400 tons of refuse had to be removed and the amount increases annually. Attempts to find a site for a destructor which would receive the sanction of the Local Government Board are believed to have been successful. The matter is becoming very urgent.

7. Nuisances. 3,787 premises have been inspected and 1,062 nuisances detected Of these 1,010 have been abated.

8. Bye-laws. A complete series have been adopted and they are amended from time to time to keep them up-to-date.

9. Schools. The Council has control of the schools and scholars and the Medical Officer's report thereon is issued as a special section.

10. Infectious Diseases. The record for the year is the lowest since notification commenced. There has been no epidemic of any kind. Great use is made of bacteriology in diagnosing doubtful cases. The results of the examinations made in the County Laboratory during the year were as under:—

Suspected Disease.	No. of Specimens sent.	Result positive.	Result negative.
Diphtheria ...	187 ...	47 ...	140
Enteric Fever ...	1 ...	1 ...	—
Tuberculosis ...	44 ...	11 ...	33
Ringworm ...	282 ...	188 ...	94

Antitoxin is supplied gratuitously in suitable cases.

Phthisis is voluntarily notifiable, and 19 cases were notified. On receipt of a notification a visit is made and full particulars of the case obtained and recorded. Advice is given and assistance rendered on occasions. Disinfection follows death or removal. In the autumn the Council agreed to set aside 6 beds at the isolation hospital for suitable cases, when space could be afforded. Unfortunately the opportunity has not arisen. Besides the above 19 voluntarily notified cases, 21 cases were notified under the Public Health (Tuberculosis) Regulations.

11. Further Sanitary Requirements. The most urgent is a dust destructor.

LEIGH-ON-SEA.

Medical Officer of Health ... W. DOUGLAS WATSON, M.R.C.S., L.R.C.P.

Area in acres	2,332
Population, 1901 census	3,667
,, 1910 estimated	7,378
Deaths registered in the district ...	81
Corrections ... Additions ...	6
,, ... Deductions ...	—
Nett deaths	87

	1910.		Mean 1900-9.
Nett death-rate	11·7	...	11·4
Infantile Mortality	104	...	84
Birth-rate	19·5	...	24
Cases of disease notified per 1,000 population	1·9	...	—

The report is printed.

1. General. The town adjoins Southend, to the west, and is on the bank of the Thames estuary. Twenty years ago it was a small fishing village, now it is a rising residential town. Many of the poorer inhabitants are fishermen, many others are engaged in the building trades. Business and professional men from London are increasing in number.

2. House Accommodation. Building is proceeding apace, and the Surveyor, who no longer acts also as Sanitary Inspector, sees that all the building bye-laws are complied with. (There are some very old and defective cottages in the oldest portion of the town—J.C.T.)

3. Water Supply. Water is supplied by the Southend Water Co., and has been both abundant and constant.

4. Milk and Food. All places at which milk or food is prepared or sold have been frequently visited. Only one seizure was made, the food supply generally being good. One slaughterhouse is satisfactory, the other very unsatisfactory. The dairies and cowsheds are kept in a fairly clean condition.

5. Sewerage, Excrement Disposal and Pollution of Rivers. Practically all the houses have w.c's. There are now over 13 miles of sewers. The sewage is bacteriologically treated and the effluent discharged on the ebb tide. The Council has resolved that separate drains must be provided for all houses in the future. To the north of London Road the new houses have cesspools; the sewerage of this area cannot long be delayed.

6. House Refuse. This is collected weekly by a contractor and the refuse taken to a brickfield. Trade refuse is collected by agreement with the tradesmen. Complaints as to the non-removal of house refuse have not been infrequent, but when made they are promptly attended to.

7. Nuisances. A whole time Inspector has been appointed, with advantage to the district. 342 nuisances were reported or discovered and all have been abated.

8. Bye-laws. A list of these is given and include all which are required, save a set relating to slaughterhouses. Certain additional powers are given by the Leigh Urban District Council Act, 1890, and the Public Health Acts Amendment Act, 1870, has been adopted.

9. Schools. The schools are becoming congested and a new school is about to be erected, when present defects can be remedied.

10. Infectious Diseases. There is no hospital or disinfecting station. The Surveyor has prepared plans which are now under consideration. Known cases of phthisis are visited and the necessary instructions given. After death or removal disinfection is carried out.

11. Further Sanitary Improvements. Those referred to are: Provision of an isolation hospital, extension of sewers, new schools, bye-laws relating to slaughter-houses, and more efficient ventilation of sewers.

LEYTON.

Medical Officer of Health ... J. F. TAYLOR, M.R.C.S., D.P.H.

Area in acres	2,594
Population, 1901 census	98,912
,, 1910 estimated	123,300
Deaths registered in the district ...	2,125
Corrections ... Additions ...	15
,, ... Deductions ...	1,028
Nett deaths	1,112

	1910.		Mean 1900-9.
Nett Death-rate	9·0	...	11·56
Infantile Mortality	63·4	...	107·6
Birth-rate	24·4	...	29·05
Cases of disease notified per 1,000 population	6·7	...	—

The report is printed.

1. General. A London suburb, once dotted with mansions. Most of these have disappeared, but some remain, but are all used as public institutions. The larger villas first erected are now being converted into double tenements.

2. House Accommodation. Double tenement houses are now almost exclusively being erected, and evidently meet a demand, as they readily let at rentals of from 5s. 6d. to 7s. 6d. per week. There is now no vacant land in the district, so that town planning is impossible. There are plenty of houses of a suitable character for the working classes. All new houses are required to conform to the bye-laws and are not allowed to be inhabited until certified "fit" by the Surveyor. Dirty and destructive tenants give most trouble. There are a few owners of property who are specially skilled in evading the law.

3. Water Supply. The district is served by the Metropolitan Water Board, and the supply is constant and of uniformly good quality. Shallow wells supply an unique area named Lea Bridge Gardens, where is found a congerie of wooden cottages. Standpipes have, however, been placed in positions accessible from the cottages.

4. Milk and Food. Cowkeeping steadily diminishes, and the importation of milk increases. Care is taken in registering milk dealers, and all places connected with the milk trade are efficiently supervised. Places where foods are prepared, stored, or exposed for sale, are periodically inspected. Two inspectors possess certificates of qualification to act as Food Inspectors. A quantity of unsound food was destroyed. Apparently it was voluntarily surrendered. There are 18 slaughterhouses. These are visited when slaughtering is in progress. The establishment of a public abattoir is desirable.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. The water carriage system is universal, save at Lea Bridge Gardens. The older sewers are being brought up-to-date. House drains receive constant attention. The sewage is treated with lime, etc., and after clarification is discharged into the Lea. The Lea valley sewerage scheme makes no progress. The effluent from Walthamstow, as well as of Leyton, is discharged into what is called the Waterworks River, bordering the Hackney Marshes, and which then joins the Lea. Throughout its extent the Waterworks Rivers suffers considerable pollution.

6. House Refuse. Refuse removal is done by a contractor, but the Council employs five extra men and a dust inspector. The latter official recently died and the duties are, at present, being discharged by the Chief Sanitary Inspector. The refuse is taken to the Council's destructor, and there burnt together with most of the pressed sewage sludge.

7. Nuisances. 4,217 houses were inspected during the year, and 4,101 drains tested. 4,825 notices were served to abate nuisances.

8. Bye-laws. A list of Acts adopted and of Bye-laws and Regulations is included in the report. A special officer has been appointed to administer the provisions of the "Employment of Children" Act, and the "Shop Hours" Act.

9. Schools. A school nurse assists in the inspection of children, etc. The employment of Health Visitors is advocated. A hygienic survey has been made of all school buildings and a very full report upon each school is given.

10. Infectious Diseases. There appears to have been no unusual prevalence of these diseases. Diphtheria antitoxin is supplied to those too poor to pay for it from the Town Hall and three of the Fire Brigade Stations. Special provision is made by the Poor Law Guardians for phthisical patients. Some are taken into special wards of the Infirmary, others are sent to Dr. Lyster's shelters near Chelmsford. The Medical Officer of Health's interesting remarks on the treatment of phthisis will be found in the section dealing with tuberculosis.

11. Further Sanitary Requirements. A public abattoir; lady health visitors.

The Public Health Department is now housed in a new wing added to the Town Hall. This was rendered necessary by the increase of the staff. The suite of rooms are light and airy and well adapted for the purpose for which they were designed.

LOUGHTON.

Medical Officer of Health ... A. BUTLER-HARRIS, M.A., M.B.

Area in acres ...	...	...	3.961
Population, 1901 census	...	...	4,730
,, 1910 estimated ...		...	6,100
Deaths registered in the district		...	39
Corrections ...	Additions	...	5
,, ...	Deductions	...	4
Nett deaths ...	...	...	40

	1910	Mean 1900-9.
Nett death-rate	6·6 ...	8·7
Infantile Mortality	59·8 ...	86·8
Birth-rate	19·2 ...	21·2
Cases of disease notified per 1,000 population	2·3 ...	—

The report is printed.

1. General. A residential district, including part of Epping Forest. The rural portion is agricultural. There are no large factories and no workmen's trains.

2. House Accommodation. Apparently satisfactory in all respects. New buildings efficiently supervised.

3. Water Supply. Supplied with water by the Metropolitan Water Board from the deep wells in the Lea valley. It is hard and very pure.

4. Milk and Food. Dairies and cowsheds, slaughterhouses, etc., are regularly visited and kept in a good sanitary condition. The milk supply is satisfactory. The testing of cows with tuberculin is advocated. No unsound food has been found.

5. Sewerage, Excrement Disposal and Pollution of Rivers. The sewerage and drainage of the district is, with one exception, satisfactory. There is an isolated house in the forest, the sewage from which often causes trouble. A sewer is now being laid to connect this house with the main system. A few w.c.'s are without proper flushing arrangements. The sewage is treated on bacteria beds fed by sprinklers, and is quite satisfactory. The effluent passes into the Roding and causes no complaint.

6. House Refuse. The removal is becoming more efficient. A new bye-law will shortly come in force enjoining portable receptacles and a weekly collection.

7. Nuisances. Only 26 nuisances appear to have been discovered during the year, and 23 were abated. The number of cottages inspected was 23.

8. Bye-laws. Those in force relate to new buildings, nuisances, slaughterhouses, and dairies and cowsheds.

9. Schools. The sanitary arrangements are in good order.

10. Infectious Diseases. By arrangement cases of infectious disease are sent to the Walthamstow Isolation Hospital at Chingford. Bedding, etc., are also disinfected there. Voluntary notification of phthisis is a failure. A scheme is on foot to provide one or two portable shelters.

11. Further Sanitary Requirements.

MALDON.

Medical Officer of Health ... H. REYNOLDS BROWN, M.D., C.M.

Area in acres	3,028
Population, 1901 census	5,565
,, 1910 estimated	5,739
Deaths registered in the district ...	99
Corrections ... Additions ...	2
,, ... Deductions ...	33
Nett deaths	68

	1910.	Mean 1900-9.
Nett Death-rate	11·8 ...	14·4
Zymotic Death-rate	·4 ...	—
Infantile Mortality	70 ...	93
Birth-rate	22·3 ..	23·5
Cases of disease notified per 1,000 population	7·0 ...	—

The report is printed.

1. General. On the tidal estuary of the Blackwater. The chief industries are ironworks, steam saw mills, flour mills, fishing and seafaring.

2. House Accommodation. This does not keep pace with the population. There is a serious dearth of houses at rents below 7/- per week. Some of the old houses are far from being satisfactory. No action taken under the Housing of the Working Classes Acts.

3. Water Supply. The waterworks belong to the Corporation. The two wells only yield 80,000 gallons per day, but this is said to be found to be sufficient. The supply is, however, intermittent. Quality excellent.

4. Milk and Food. Conditions satisfactory on the whole. Some of the dairies are "by no means perfect."

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Some low lying parts of town not sewered. Here pail closets are used and emptied weekly. 80 per cent. of the houses have w.c.'s The sewage is screened and passes through a tank capable of holding 24 hours flow, being discharged into the river on the ebb tide at a point a mile below the town. This does not cause "any serious nuisance."

6. House Refuse. The authority removes the refuse, where there are sanitary dustbins, and the number is increasing; these are emptied weekly.

7. Nuisances. A house-to-house inspection has been commenced. 102 nuisances were detected and all appear to have been abated. Nuisances chiefly arise from defective paving of yards, and especially around the gullies.

8. Bye-laws. Certain bye-laws are in force and sanction has been obtained for the adoption of the Public Health Acts Amendment Act, 1907, with the exception of certain sections, and parts viii. and ix.

9. Schools. The Girls' Department of the British Schools is overcrowded. The sanitary condition of two other schools has been improved during the year.

10. Infectious Diseases. The accommodation at the isolation hospital has been severely taxed. At the Union Infirmary arrangements have been made for receiving 12 phthisis patients. The Medical Officer of Health thinks that shelters could be erected on the ground available. Disinfection is properly carried out. An epidemic of diphtheria occurred (33 cases) during the year, the cause of which could not be ascertained. Antitoxin was supplied both for curative and prophylactic purposes with excellent results.

11. Further Sanitary Requirements. A list is appended. *Vide* section relating thereto.

ROMFORD.

Medical Officer of Health ...	A. WRIGHT, M.R.C.S.
Area in acres	5,630
Population, 1901 census	13,656
,, 1910 estimated	16,990
Deaths registered in the district ...	283
Corrections ... Additions ...	2
,, .. Deductions .	105
Nett deaths	180

	1910.	Mean 1900-9.
Nett Death-rate	10·5 ...	11·6
Infantile Mortality	68·7 ...	106
Birth-rate	23·1 ...	26
Cases of disease notified per 1,000 population	3·1 ..	—

The report is printed.

1. General. The urban district comprises the larger portion of the town of Romford, and the hamlets of Collier Row, Squirrels Heath, Romford Common, and part of Noak Hill. It is partly on clay and partly on gravel. The town itself is on the lowest portion of the area, in the Rom valley.

2. House Accommodation. Satisfactory. There are two or three courts in which the houses are rather overcrowded on space. The population is of a varied class, ranging from landed gentry to the ordinary labourer. The brewery employs many persons and many are engaged in the building trade and in agriculture.

3. Water Supply. Water is supplied by the South Essex Co. to all parts except Noak Hill. It is good and constant but very hard. Private wells are gradually being closed.

4. Milk and Food. The dairies and cowsheds are satisfactory. Shops and markets are regularly inspected. No unsound food was discovered. The frequent bacteriological examination of milk for tubercle bacilli is advocated. The Inspector attends the cattle market and sees that the bye-laws are complied with. Where a diseased animal is observed he obtains the name and address of the purchaser and acquaints the local authority of the district into which the animal is being taken. Food and provisions exposed for sale in other markets are examined. No seizing was made.

5. Sewerage, Excrement Disposal and Pollution of Rivers. As building estates are developed the sewers are extended. With few exceptions the houses have w.c's. The sewage is treated by broad irrigation on a farm of 185 acres, and the effluent is discharged into the Rom. It does not pollute the watercourse.

6. House Refuse. "This is done by the Council, removal being effected fortnightly in covered vans, and deposited in brickfields and some in disused gravel pits."

7. Nuisances. 505 nuisances were discovered and 515 abated.

8. Bye-laws.

9. Schools. The sanitary condition is satisfactory.

10. Infectious Diseases. Cases are promptly removed to the hospital and rooms disinfected, the bedding is steamed at the hospital disinfector when this course is deemed desirable. After death or removal of cases of phthisis the rooms, etc., are disinfected. At the workhouse six shelters have been provided for incipient cases and a ward with sixteen beds for advanced cases.

11. Further Sanitary Improvements Required.

SAFFRON WALDEN.

Medical Officer of Health ... W. ARMISTEAD, M.B.

Area in acres	7,502
Population, 1901 census	5,896
,, 1910 estimated	6,525
Deaths registered in the district ...	99
Corrections ... Additions ...	0
,, ... Deductions ...	25
Nett deaths	74

	1910.	Mean 1900-9,
Nett Death-rate	11·3 ...	13·1
Infantile Mortality	59 ...	110
Birth-rate	15·6 ...	18·3
Cases of disease notified per 1,000 population	5·8 ...	5·1

The report is printed.

1. General. The town is in the Cam valley, on the upper chalk. The most populous part is 150 to 250 feet above sea level, but at Sewards End it rises to 400 ft. The inhabitants are engaged in various occupations. Some are dependent upon agriculture, and some are engaged in the building trade and in brick and cement works.

2. House Accommodation. Private enterprise does not appear to supply all the houses required, as there is a demand for more. There are 18 back-to-back houses. Generally speaking the cottages and their surroundings are satisfactory. The building bye-laws date from 1895.

3. Water Supply. At the Council's works water is derived from a deep well in the chalk, and it is softened before distribution.

4. Milk and Food. There are 17 registered cowkeepers and purveyors of milk, and 5 slaughterhouses. With a few exceptions all are satisfactory. No food has been seized during the year. No action has been taken with regard to cows suffering from tuberculosis of the udder.

5. Sewerage, Excrement Disposal and Pollution of Rivers. Most of the houses have w.c's, but where there are no sewers earth closets and privies are used. The sewerage system is being extended and improved and the Local Government Board has

sanctioned a scheme for this and for new disposal works at an estimated cost of £23,000. The contract has been let and the works are to be completed by Nov. 1st, 1911. The sewage will be distributed over bacteria beds by means of sprinklers. When the works are completed the effluent will no longer pollute the river.

6. House Refuse. Most houses have sanitary ashbins and the contents are removed once a week by a contractor. The "D" card system is adopted.

7. Nuisances. 291 inspections were made during the year and 37 nuisances detected and dealt with.

8. Bye-laws. The following are in force in the borough:—(1) Nuisances, (2) Dairy Regulations, (3) Markets, (4) Slaughterhouses, (5) Cleansing of pavements, (6) New streets and buildings, (7) Alteration of buildings. The undermentioned Acts have been adopted:—Infectious Diseases Prevention Act, Public Health Amendment Act, 1890, Private Street Works Act, Baths and Washhouses Act.

9. Schools. There are seven elementary schools in the borough, all of which are in a satisfactory sanitary condition.

10. Infectious Diseases. A small school outbreak of scarlet fever occurred in November. Suitable cases are removed to the joint hospital. Save among poor persons there is no notification of phthisis. Cleansing and disinfection of infected articles is undertaken when necessary.

11. Further Sanitary Improvements Required.

SHOEBURYNESS.

Medical Officer of Heath ... M. H. RAPER, M.D., D.P.H.

Area in acres	1,036
Population, 1901 census	4,081
,, 1910 estimated	4,900
Deaths registered in the district ...	40
Corrections ... Additions ...	6
,, ... Deductions ...	—
Nett deaths	46

	1910.		Mean 1900-9.
Nett Death-rate	9·3	...	11·6
Infantile Mortality	45	...	113·5
Birth-rate	31·8	...	34·7
Cases of disease notified per 1,000 population	4·7	...	—

The report is type-written.

1. General. The district is at the mouth of the Thames estuary. It is an important military centre, but the urban statistics do not include the barracks or the War Department's works. The local industries are brick-making and fishing, barging, etc. The eastern half of the district is on the London clay, the western and more elevated half is chiefly on gravel and sand.

2. House Accommodation. This is adequate, with few exceptions, which are being dealt with satisfactorily. Inspections are being made under the Housing and Town Planning Act.

3. Water Supply. The waterworks belong to the Council. Water is derived from a deep well. The pumps have recently been improved and the supply has been more satisfactory than formerly. The water is soft and very poor. The daily consumption averages 35,000 gallons. The supply is continuous. For sewer flushing, etc., another supply is utilized and the consumption is about 25,000 gallons a day.

4. Milk and Food. Dairies and cowsheds are kept in good condition. Other premises where food is stored or exposed for sale are inspected at intervals. No tuberculous meat has been condemned.

5. Sewerage, Excrement Disposal and Pollution of Rivers. Practically the whole of the populated area is sewered. There are two outfalls into the sea. One outfall has been improved to obtain a proper fall and free outlet. Improvements in house drainage is in progress. Water closets alone are in use in the urban portion of the area.

6. House Refuse. All houses are provided with sanitary dustbins. These are emptied by a contractor twice a week and in a satisfactory manner.

7. Nuisances. The inspections under the Housing of the Working Classes Act has resulted in a large number of nuisances being detected, all of which are being dealt with. Some houses have been entirely re-drained. Some piggeries have been closed. (The huge deposits of house refuse at Pigs Wharf, for use at the adjacent brickfields are not referred to. Nuisances have arisen from the burning of this refuse, but by limiting the time of burning these have been minimised.—J.C.T.)

8. Bye-laws.

9. Schools. The two schools here are of recent construction and are quite satisfactory.

10. Infectious Diseases. Only two cases of enteric fever occurred during the year. There was no epidemic of any kind. Cases are sent for isolation to the joint hospital at Rochford. Phthisis is notified voluntarily and few cases escape notice. Disinfection is by means of sulphur candles.

11. Further Sanitary Requirements.

SOUTHEND-ON-SEA.

Medical Officer of Health ... C. GRANT PUGH, M.D., B.SC., D.P.H.

Area in acres ...	...	...	5,172
Population, 1901 census	...	...	28,857
,, 1910 estimated ...		...	64,989
Deaths registered in the district		...	599
Corrections ...	Additions	...	44
,, ...	Deductions	...	23
Nett deaths ...	...	...	620

	1910.	Mean 1900-9.
Nett Death-rate	9·5 ...	12·0
Infantile Mortality	87·8 ...	124·3
Birth-rate	17·7 ...	22·2
Cases of disease notified per 1,000 population	3·2 ...	—

The report is printed. It is a very full report indeed and not overloaded with Tables.

1. General. This borough is near the mouth of the Thames estuary and naturally has a south aspect. The inhabited portion is from a few feet to 125 feet above O.D. Two gentle slopes form valleys dividing it into an eastern and western portion. The population continues to increase with singular rapidity. If the present rate of increase continues it will soon become the largest watering place in the kingdom.

2. House Accommodation. There are few empty houses notwithstanding the number erected each year. Working men find an increasing difficulty in obtaining houses as builders do not find it pay to erect houses of less rental than 9/6 per week. Tenement houses are, as a consequence, increasing in number. The borough owns 40 cottages, which are let at 7s. 5d, and 8s. 6d. per week inclusive of rates. These leave a burden on the rates of £129 a year, but some of the capital charge relates to land not yet built upon. A special committee of the Council is considering what action can be taken as regards town planning under the Housing and Town Planning Act. Both old and new houses are efficiently supervised. Back passages and back yards are receiving special attention. Cleansing of the former by the Council's men is advocated.

3. Water Supply. The rapid increase in the resident population and of visitors in summer taxes the resources of the Water Co., but so far the supply has been ample and of excellent quality. During the year the Water Co. obtained power from Parliament for the construction of 13 new pumping stations, to meet the requirements of the borough and adjacent districts for the next 15 years. No complaint about the water has been made during the year.

4. Milk and Food Supply. An Inspector with special qualifications for inspecting food is employed, and all kinds of food and all places in which food is prepared for sale are under strict supervision. On the whole very little unsound food was detected, no doubt this is, in part, due to the careful control exercised. Dairies and cowsheds are, on the whole, maintained in a satisfactory condition, but the constant vigilance of the borough officials fails to secure such a degree of cleanliness as could be desired. Much of the milk used is imported, and over these external dairies the borough has no control. The Medical Officer of Health thinks the County Council ought to be empowered to see that provisions for securing cleanliness, etc., are strictly enforced over their whole area.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. The water carriage system is adopted throughout the borough with the exception of a few houses in the outskirts where pail closets are used. There are some cesspools in outlying areas to which the sewers have not, as yet, been extended. A suggestion that the Council

should undertake to cleanse these was not acted upon on account of the expense entailed. The new intercepting sewers and the sewage works are progressing rapidly and will be completed in 1912. The estimated expenditure is £160,000. At present the sewage is discharged at the ebb tide, by means of an outfall a mile from high water mark and 530 yards east of the pier.

6. House Refuse. The borough is divided into five districts for scavenging purposes and house refuse is removed weekly. From hotels, boarding houses, etc., refuse is removed twice weekly in winter and thrice in summer. Contractors provide a tip outside the borough. The position must satisfy the Council but the contractors indemnify the Corporation against any claim in respect of nuisances which may be caused by the deposit. Half an acre of land at the sewage works has been allocated for a destructor, to cost about £11,000. Many advantages will accrue when this is available.

7. Nuisances. 1265 nuisances were dealt with during the year, and 2130 houses were inspected. The Corporation endeavoured to obtain the sanction of the Local Government Board to adopt more stringent bye-laws with reference to the keeping of animals, but apparently failed. Tent, vandwellers, and squatters on vacant building ground give rise to much trouble.

8. Bye-laws. New bye-laws relating to tents, vans and sheds have been provisionally approved by the Local Government Board. One clause relating to water supply was not approved, "hence the absurd position arises that the occupier of a house in the borough is compelled to provide an adequate water supply upon his premises, but a person who permanently dwells in a van, tent or shed, is merely called upon to provide a suitable receptacle for water.

9. Schools. The subjec t of a special report to the Education Committee.

10. Infectious Diseases. The incidence of infectious diseases has been extremely low. Only two cases of typhoid fever were reported and for the second year in succession no death was attributable to this disease. This is remarkable testimony to the efficiency of the sanitary administration. Cases of infectious disease are becoming so rare that when a few are heard of there is a tendency to unreasonable panic which is much to be deprecated. The voluntary notification of phthisis is a complete failure. Attention is paid to such cases as come to the knowledge of the Medical Officer of Health, and communications have passed between the Health Committee and the Board of Guardians with reference to the provision of a sanatorium. This subject is referred to elsewhere.

11. Further Sanitary Requirements. These are given as :—Provision of a tuberculosis dispensary and more active measures against tuberculosis. Revision of building bye-laws. Powers of inspection of storeplaces of fruit hawkers, ice cream vendors, etc. More frequent collection of refuse from restaurants, etc.

(It is practically impossible to epitomise this excellent report in the space at my disposal. Many most interesting matters cannot even be referred to here, but certain of these are discussed in the body of this report.—J.C.T.)

WALTHAM HOLY CROSS.

Medical Officer of Health ... J. DAMER PRIEST, D.P.H., M.R.C.S.

Area in acres	11,070
Population, 1901 census	6,547
,, 1910 estimated ...	7,000
Deaths registered in the district ...	65
Corrections ... Additions ...	9
,, ... Deductions ...	4
Nett deaths	70

	1910.		Mean 1900-9.
Nett Death-rate	10·0	...	11·8
Infantile Mortality	34·4	...	109·6
Birth-rate	20·7	...	25·1
Cases of disease notified per 1,000 population	3·1	...	—

The report is printed.

1. General.

2. House Accommodation.

3. Water Supply. The supply is from a deep well in the Lea Road, belonging to the Metropolitan Water Board. It is of great purity.

4. Milk and Food. The Sanitary Inspector possesses a certificate as "Inspector of Meats and Foods." Slaughterhouses are regularly inspected and at times of slaughtering. Several seizures of unsound meat were made. Dairy farms are visited monthly by the Medical Officer of Health and a veterinary surgeon, the cattle tested for tuberculosis, and any infected animal segregated.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. The sewers do not extend over the whole district. The Council was convicted because a private owner discharged imperfectly purified sewage into the River Lea. Upon appealing the conviction was quashed. The action has, however, resulted in a scheme being formulated for sewering about 47 premises at Upshire. The Local Government Board has granted a loan for the purpose. The present sewage works give very good results but will be overtaxed when the Upshire addition is completed. High Beach and Sewardstone will then remain to be sewered—a very costly undertaking.

6. House Refuse. Removed satisfactorily.

7. Nuisances. Systematic work under the Housing Acts is being undertaken. 401 nuisances were detected and 476 abated.

8. Bye-laws. "Remain unaltered, are efficient and enforced."

9. Schools.

10. Infectious Diseases. Nearly all cases of diphtheria and scarlet fever are removed to the joint hospital, which is well equipped. Compulsory notification of phthisis is advocated. Notified poor law cases are well looked after, and disinfection takes place after death or removal. Two shelters are to be provided for the open-air treatment of suitable cases.

11. Further Sanitary Requirements.

WALTHAMSTOW.

Medical Officer of Health ... J. J. CLARKE, L.R.C.P., D.P.H.

Area in acres				4,343
Population, 1901 census				95,131
,, 1910 estimated				141,748
Deaths registered in the district ...				949
Corrections ...	Additions ...			254
,, ...	Deductions ...			17
Nett deaths				1,186

	1910.		Mean 1900-9.
Nett Death-rate	8·4	...	11·33
Infantile Mortality	88·5	...	119·4
Birth-rate	22·6	...	30·8
Cases of disease notified per 1,000 population	3·5	...	9·2

The report is printed.

1. General. Walthamstow is a large district (4,355 acres) divided into 5 wards, lying between the River Lea and Epping Forest. The subsoil is mainly gravel, but clay comes to the surface in places. The artizan and labouring classes predominate in all the wards.

2. House Accommodation. The houses generally are modern and well-built and the accommodation is ample in all wards. There is little overcrowding. A considerable amount of improvement has been effected under the new building bye-laws which provide for paving around existing houses, and the improved appearance and sanitary conditions of the houses so dealt with is very noticeable. Families devoid of house-pride receive the particular attention of the Sanitary Inspectors.

3. Water Supply. The whole district is served by the Metropolitan Water Board. The supply is constant and good and no complaints are received from householders.

4. Milk and Food. New regulations under the Dairies, Cowsheds, and Milk-shops Order came in force on January 1st, 1911, and in consequence of their anticipated effectiveness one of the worst premises has been abandoned. Great trouble is experienced with the small milk retailer. A veterinary surgeon inspects the cows and many with tubercular affections were discovered. The total number of cows kept in the district cannot supply more than one-tenth of the milk consumed. Slaughterhouses and bakehouses are systematically inspected. Three prosecutions took place for having on the premises tuberculous meat. In two instances fines of £20 and costs were imposed, the third case was dismissed. A large quantity of unsound food of various kinds was destroyed.

5. Sewerage, Excrement Disposal, and River Pollution. The water carriage system is universal. The whole district has a duplicate system of sewers. The sewage farm is 182 acres in extent. The existing drainage and sewerage systems are satisfactory and no complaints have been received from householders. There is no nuisance at the farm. The negotiations which have been undertaken in connection with the

admission of the sewage of the district into the main drainage system of the metropolis are likely to be soon successful and a long standing difficulty solved.

6. House Refuse. There is a bi-weekly collection save in the shopping area where it is tri-weekly. Almost the whole 16,073 tons collected was burnt in the destructor without nuisance. The collection is done under the supervision of the Surveyor, and no complaints have been received.

7. Nuisances. The Inspector has filled in the County Council form, and from his report 5,529 premises were inspected, 4,301 nuisances were detected, and 4,301 abated.

8. Bye-laws. Special reference is made to new Regulations adopted under the Dairies, Cowsheds, and Milkshops Order.

9. Schools. The schools and scholars are under the control of the Urban District Council and dealt with in a separate report.

10. Infectious Diseases. The district possosses an admirable isolation hospital, in every way well equipped. There has been no special outbreak and the statistics are very favourable. A woman inspector visits invaded houses and makes enquiries as to the possible sources of infection. Special attention is given to schools and graphic records kept shewing the incidence of disease in each. There is no provision for consumptive patients save at the Union Infirmary. Known cases are visited, and houses disinfected, etc.

11. Further Sanitary Requirements. More public sanitary conveniences. Improved disinfecting station and shelter. An extra health visitor. More suitable office accommodation.

WALTON-ON-THE-NAZE.

Medical Officer of Health ... J. C. BROCKWELL, M.R.C.S., L.R.C.P.

Area in acres	2,065
Population, 1901 census	2,014
„ 1910 estimated	2,410
Deaths registered in the district ...	24
Corrections ... Additions ...	2
„ ... Deductions ...	1
Nett deaths	25

	1910.		Mean 1900-9
Nett Death-rate	10·4	...	11·95
Infantile Mortality	52·6	...	99·8
Birth-rate	15·8	...	21·2
Cases of disease notified per 1,000 population	2·5	...	—

The report is printed.

1. General. A watering place on the coast. Soil clay. The male inhabitants are for the most part workers in "The Foundry," or boatmen, and the female inhabitants to a large extent let lodgings in summer. Two years ago mosquitos were a great nuisance here. In consequence an active campaign to destroy the larva was inaugurated last year and with most satisfactory results.

2. House Accommodation. This is satisfactory.

3. Water Supply. Water is supplied by the Tendring Hundred Water Co., and is ample and of good quality.

4. Milk and Food. Milk is said to be good. One tuberculous cow detected and ultimately destroyed.

5. Sewerage, Excrement Disposal, and River Pollution. Excrement is removed by water carriage and conveyed by sewers to septic tanks, from which the sewage is discharged out to sea on the ebb tide.

6. House Refuse. This is removed by a contractor. The tip used is not a satisfactory one.

7. Nuisances. 41 nuisances appear to have been detected and 85 abated.

8. Bye-laws.

9. Schools. One old badly-ventilated school is still in use, but a new one is in course of erection. (Since completed and occupied.)

10. Infectious Diseases. Very few cases occurred of notifiable disease. There was an epidemic of whooping cough. Tuberculosis is not notified, save Poor Law cases. There is no isolation hospital.

11. Further Sanitary Requirements. An isolation hospital for the use of this and adjacent districts.

WANSTEAD.

Medical Officer of Health ... F. ARGLES, M.R.C.P., M.R.C.S.

Area in acres			1,679
Population, 1901 census			9,179
,, 1910 estimated			14,000
Deaths registered in the district ...			83
Corrections ...	Additions ...		7
,, ...	Deductions ...		0
Nett deaths			90

	1910.		Mean 1902-9.
Nett Death-rate	6·4	...	8·4
Infantile Mortality	30	...	77
Birth-rate	14·2	...	19·2
Cases of disease notified per 1,000 population	4·6	...	—

The report is printed.

1. General. Motor omnibuses damage the roads, cause a dust nuisanee, and deerease the value of certain property *en route.* There are two orphanages in the distriet, but the population, ete., of these are not included in the above statistics.

2. Housing Accommodation. Houses are being built "apparently beyond the actual needs of the locality." A huge block of buildings is nearing completion. They are to be used as "Receiving Homes" for the West Ham Guardians.

3. Water Supply. Served by the Metropolitan Water Board and is constant and of good quality.

4. Milk and Food. There are six eowsheds and six milkshops, all inspeeted monthly. Some milk from an anthrax infected dairy was traced from Ongar, through Snaresbrook station to Walthamstow, and seized and poured out. At one provision shop some decomposing food was found in storage.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. As estates develope sewers are laid and ventilated through iron columns. All houses are connected with the sewers and the sewage is bacterially treated at the farm. Complaints of foul smells have been received and the Council has had plans prepared for extending and remodelling the works. A skilled farm manager has been appointed.

6. House Refuse. Is removed by a eontractor who eolleets weekly in *open* earts.

7. Nuisances. 123 nuisances were found and 81 abated.

8. Bye-laws.

9. Schools. Water supply, drainage, and sanitary convenienees are satisfaetory.

10. Infectious Diseases. There is an isolation hospital with 20 beds, disinfector, etc. The diphtheria wards were unoceupied most of the year. Diphtheria antitoxin has been supplied free of eharge to the poorer classes for years past.

11. Further Sanitary Improvements.

WITHAM.

Medieal Officer of Health ... K. GIMSON, M.B., B.CH.

Area in acres			...	3,633
Population, 1901 census ...			...	3,454
,, 1910 estimated ...			...	3,640
Deaths registered in the district			...	39
Corrections ...	Additions		...	0
,, ...	Deduetions		...	0
Nett deaths			...	39

	1910.		Mean 1900-9.
Nett Death-rate	10·7	...	12·0
Infantile Mortality	58	...	96
Birth-rate	18·9	...	18
Cases of disease notified per 1,000 population	3·6	...	—

The report is printed.

1. General. The poorer classes are agricultural labourers. There is practically no industry.

2. House Accommodation. Above 4s. per week rental there appears to be a sufficiency of houses, below that rent there is a want of proper sanitary dwellings. Some cottages are occupied which ought probably to be condemned, and others want repairs. If an owner is compelled to spend money on such places the rent is increased and the tenant has to pay. The Council has appointed a Committee to enquire into the possibility of erecting some cheap workmen's cottages.

3. Water Supply. The Council's new waterworks derives water from two deep wells. "The supply is continuous and satisfactory in every way."

4. Milk and Food. The dairies are, on the whole, satisfactory. No regulations have been adopted. New bye-laws are required for the regulation of the four slaughterhouses.

5. Sewerage, Excrement Disposal and Pollution of Rivers. Most of the houses have w.c's. The sewers are barely adequate, overflowing after heavy rains. The sewage is dealt with by broad irrigation on 40 acres of land. In very wet seasons some imperfectly purified sewage gets into the Blackwater River.

6. House Refuse. This is collected by the Council's carts and taken to the sewage farm. Dustbins are emptied weekly. When ashpits require attention notice has to be sent to the Surveyor.

7. Nuisances. From the Inspector's table 76 nuisances appear to have been found and only 16 abated. Only 26 cottages were inspected.

8. Bye-laws. Those in force are old and more modern ones are required.

9. Schools. Sanitary condition good.

10. Infectious Diseases. There is no isolation hospital. An outbreak of typhoid fever caused considerable expense and "once again emphasises the necessity for the erection of some permanent isolation hospital," or combination with some other already existing in the neighbourhood.

11. Further Sanitary Requirements. List given. *Vide* section relating thereto.

WIVENHOE.

Medical Officer of Health ... G. PENDER-SMITH, L.S.A.

Area in acres	1,564
Population, 1901 census	2,560
,, 1910 estimated	3,000
Deaths registered in the district ...	22
Corrections ... Additions ...	2
,, ... Deductions ...	—
Nett deaths	24

	1910.	Mean 1905-9.
Nett Death-rate	8·0 ...	11·0
Infantile Mortality	46·6	102
Birth-rate	14·3 ...	18·0
Cases of disease notified per 1,000 population	11·0 ...	—

The report is printed.

1. General.

2. House Accommodation. Very satisfactory both in the matter of accommodation and sanitary condition, but a few older properties might with advantage be closed.

3. Water Supply. From a deep well in the chalk. The supply is constant and plentiful and of the highest standard of purity. The mains have been extended 500 yards and the great majority of houses are within their reach. A few houses, however, still prefer to use shallow well water.

4. Milk and Food. There are three dairies and two milkshops. One dairy requires greatly improving. Meat, vegetables, etc., are inspected at intervals. No unsound food has been discovered.

5. Sewerage, Excrement Disposal and Pollution of Rivers. There are 378 pail closets and 20 or 30 privies, and a number of cesspools. (There is no proper system of sewers.—J.C.T.) Drainage from certain houses enters a brook which discharges into the Colne. In another such case the sewage is treated with alumino-ferric. Pail closets, etc., are emptied by the Council's scavengers. Privies are gradually being converted into pail closets.

6. House Refuse.

7. Nuisances. 308 cottages have been inspected and only 18 nuisances discovered. All have been abated.

8. Bye-laws.

9. Schools. Sanitary arrangements adequate and satisfactory. Water from the mains.

10. Infectious Diseases. 30 cases of diphtheria occurred during the year. There is no isolation hospital. Apparently cases can be sent to Colchester hospital, but there is no record of any such removal during the year. Tuberculosis cases are carefully watched.

11. Further Sanitary Requirements.

WOODFORD.

Medical Officer of Health ... W. G. GROVES, M.R.C.S.

Area in acres		...	2,161
Population, 1901 census ...		...	13,798
,, 1910 estimated ...		...	20,365
Deaths registered in the district		...	128
Corrections ...	Additions	...	7
,, ...	Deductions	...	4
Nett deaths		...	131

	1910.	Mean 1900-9.
Nett Death-rate	6·4 ...	9·3
Infantile Mortality	71 ...	106
Birth-rate	17·1 ...	23·8
Cases of disease notified per 1,000 population	2·0 ...	—

The report is printed.

1. General. Most of the houses with extensive grounds have been pulled down in recent years, and the land laid out for building sites.

2. House Accommodation. At present the supply exceeds the demand. Tenants are moving from the old houses into the new ones.

3. Water Supply. This is good and constant. (From Metropolitan Water Board mains.—J.C.T.)

4. Milk and Food. About half the milk used is imported. The inspector takes samples from time to time with good effect. Dairies and cowsheds, save in a few instances, are quite satisfactory. Some fish was seized, or rather condemned, at the request of the owner.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. There are two sewage works, one in the Lee valley and the other in the Roding valley. The coke beds in the latter works are being underdrained, at the former works a humus tank has been added. Both are now giving good results, and there has been no complaint since of river pollution.

6. House Refuse. The collection is weekly. When complaints arise it is only too often found to be the fault of the complainant.

7. Nuisances. 295 nuisances were detected and 361 abated. 654 cottages were inspected. The ponds in the forest serve as breeding grounds for gnats and mosquitoes which are very objectionable to most people.

8. Bye-laws.

9. Schools. The sanitary arrangements are satisfactory.

10. Infectious Diseases. This area is now included in the Waltham Joint Hospital District. There is a disinfector in Woodford for local use, and it is sometimes used for a neighbouring district. The hospital gives entire satisfaction. Measles was the most prevalent disease during the year. Phthisis is voluntarily notifiable with a fee, but very few cases are notified, save amongst "poor persons." Pocket spitoons are supplied when applied for, but since 1907 only three applications have been received. The Council provide bottles, etc., for sputum to be sent for examination, but not one has been asked for in the last two years. The percentage of vaccinations decreases yearly, and at present there must be over 1,000 unvaccinated children in Woodford.

11. Further Sanitary Requirements.

III. RURAL DISTRICTS.

BELCHAMP.

Medical Officer of Health ... J. SINCLAIR HOLDEN, M.D.

Area in acres	26,500
Population, 1901 census	4,847
,, 1910 estimated... ...	4,847
Deaths registered in the district ...	61
Corrections ... Additions ...	4
,, ... Deductions ...	0
Nett deaths	65

	1910.		Mean 1900-9.
Nett Death-rate	13·5	...	14·2
Infantile Mortality	54·9	...	77·3
Birth-rate	18·8	...	18·5
Cases of disease notified per 1,000 population	0	...	—

The report is printed.

1. General.

2. House Accommodation. Generally adequate. Closing orders were made with reference to 10 dilapidated houses. Two were demolished after formal notice, and 8 houses were placed in habitable repair.

3. Water Supply. Derived entirely from wells and springs. There are 9 public wells supplying the most populous parts in the district. These yield sufficient and good water. There are numerous private wells. Steps are being taken to have a public well in Belchamp St. Paul, where it is much required.

4. Milk and Food. There are 4 dairies and cowsheds in the district. No action has been necessary under the Food and Drugs Act.

5. Sewerage, Excrement Disposal and Pollution of Rivers. Privy cesspits are being gradually replaced by pails. The contents are put upon the gardens. Fourteen ditches receive sewage and have been cleaned out. The chemical precipitation process at the Foxearth Brewery continues to work satisfactorily. There is no pollution of streams.

6. House Refuse.

7. Nuisances. 310 cottages were inspected. 98 nuisances were discovered and all were abated.

8. Bye-laws.

9. Schools. There are 12 elementary schools. The sanitary condition of the offices is satisfactory and the water supply, if not on the premises, is convenient. The drainage and water supply at Borley School has been improved.

10. Infectious Diseases. Not a single notification was received during the year.

11. Further Sanitary Requirements.

BILLERICAY.

Medical Officer of Health ... J. DOUGLAS WELLS, M.B., CH.B.

Area in acres		...	49,391	
Population, 1901 census ...		...	15,192	
,, 1910 estimated...		...	15,192	
Deaths registered in the district		...	423	
Corrections ...	Additions	...	0	
,, ...	Deductions	...	264	
Nett deaths		...	159	

	1910.		Mean 1900-9.
Nett Death-rate	10·4	...	10·6
Infantile Mortality	83	...	77·8
Birth-rate	23·8	...	25·2
Cases of disease notified per 1,000 population	3·7	...	—

The report is printed. There is no doubt that the population of this district is underestimated.

1. General. The County Asylum and a large barracks are situated in this district. For statistical purposes they are not included in the above returns. The district is essentially agricultural.

2. House Accommodation. There is not a parish in the district in which cottages are not required. Each parish was asked whether cottages were required but only three replied in the affirmative, and one afterwards withdrew this upon private enterprise offering to provide a few. Until more cottages are provided the old tumble down ones must continue occupied. No definite steps have as yet been taken to provide cottages.

3. Water Supply. The Southend Water Co. has extended the mains to Basildon, Mountnessing, Laindon, and Little Burstead. The South Essex Co. has extended its mains to Bentley School and in Hutton parish.

4. Milk and Food. The dairy industry is increasing in importance. On the whole cowsheds are kept in good order and greater general cleanliness is observed. Some sheds, however, are unsatisfactory. These chiefly belong to small farmers. The London County Council has reported several cases of tuberculosis. Usually the cows are fatted up and sold in the public market. The appointment of a veterinary inspector is advocated.

5. Sewerage, Excrement Disposal, and River Pollution. The new sewer for South Weald and Shenfield have been laid. A sewer is to be laid through Mountnessing street. A scheme for sewering Billericay has been sanctioned by the Local Government Board. At present the sewage of the town is discharged in a crude state into various watercourses.

6. House Refuse. In several parts of the district there are houses without gardens. Scavenging of these is suggested.

7. Nuisances. 175 nuisances were discovered and 155 abated.

8. Bye-laws.

9. Schools.

10. Infectious Diseases. There has been no outbreak. There is an isolation hospital, but an enlargement is necessary. A plan has been submitted to the Local Government Board. The Guardians have erected 2 shelters for consumptive patients.

11. Further Sanitary Improvements.

BUMPSTEAD.

Medical Officer of Health ... W. ARMISTEAD, M.B.

Area in acres	11,874
Population, 1901 census	2,541
,, 1910 estimated... ..	2,230
Deaths registered in the district ...	30
Corrections ... Additions ...	4
,, ... Deductions ...	0
Nett deaths	34

	1910.		Mean 1900-9.
Nett Death-rate	15·2	...	16·1
Infantile Mortality	82	...	101
Birth-rate	27·3	...	24·4
Cases of disease notified per 1,000 population	3·6	...	1·7

The report is printed. The high death-rate and birth-rate in this district indicate that the population is probably underestimated.

1. General. The district drains into the Stour and the Colne. The elevation varies from 170 to 400 feet above sea level. The subsoil is chalk, covered on the higher ground with boulder clay. The inhabitants are chiefly engaged in agricultural pursuits. Clothing is made in some of the cottages.

2. House Accommodation. The general condition is satisfactory.

3. Water Supply. Chiefly from wells in the chalk. At Helions Bumpstead two public pumps are supplied with filtered pond water.

4. Milk and Food. There are 14 registered cowkeepers, 6 of whom send milk to London. There are 2 private slaughterhouses.

5. Sewerage, Sewage Disposal, and River Pollution. Cesspits and privies are used. At Sturmer the sewage flows through a tank and then into the River Stour. There is no proper system of sewers. A road drain at Steeple Bumpstead receives sewage, and there is a filter bed which has recently been constructed.

6. House Refuse. There is no public scavenging. Householders dispose of the refuse, etc., on gardens and allotments.

7. Nuisances. 46 were detected and 42 abated.

8. Bye-laws. The model building bye-laws for rural districts have been adopted (1908), and regulations under the Dairies, etc., Order.

9. Schools. There are 6 elementary schools in the district, all of which have been inspected and found in a satisfactory sanitary condition.

10. Infectious Diseases. There is a small joint hospital for infectious diseases, in the adjoining district. One kind of disease only can be treated at a time. It is of wood and iron and was originally erected for the reception of small-pox cases. In the event of death from tuberculosis arrangements are made for cleansing and disinfecting.

11. Further Sanitary Requirements.

BRAINTREE.

Medical Officer of Health ... H. G. K. YOUNG, B.A., M.R.C.S., L.R.C.P.

Area in acres			62,291	
Population, 1901 census			18,106	
,, 1910 estimated			18,106	
Deaths registered in the district ...			256	
Corrections ...	Additions ...		2	
,, ...	Deductions ...		15	
Nett deaths			243	
		1910.		Mean 1900-9.
Nett Death-rate		13·4	...	13·9
Infantile Mortality		54·1	...	80·7
Birth-rate		17·3	...	19·7
Cases of disease notified per 1,000 population		2·5	...	—

The report is printed.

1. General.

2. House Accommodation. As cottages become uninhabitable they are not, as a rule, replaced by new ones. Complaint of want of cottages was made from High Garrett, on account of certain cottages being closed by the owner. An inspection was made, but apparently the conditions were not worse here than in other parts of the district. The scarcity of cottages renders it difficult to deal promptly with cases of overcrowding.

3. Water Supply. The public supply to Great and Little Coggeshall, Kelvedon, and Feering is completed, and applications for connection therewith come in in increasing numbers. The value of this supply cannot be overestimated. A boring is being made at Bocking to supply that town with water. A supply to Hatfield Peverel is contemplated.

4. Milk and Food. Dairies and cowsheds are inspected. One cowshed and dairy was condemned. Only one complaint was received about unsound food (fruit), and that had little justification. A tuberculous cow was detected by the London County Council Inspector. It was traced to two other persons in the district, and was finally sent to the Midlands. The Medical Officer of Health of the district was notified.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Pail closets are being substituted for cesspits. There are no public scavengers. Where there is not sufficient ground near the houses, scavengers should be employed. The Kelvedon sewerage scheme still remains in abeyance, and at Hatfield Peverel the brewery ditch continues to give trouble.

6. House Refuse.

7. Nuisances Many were found during the cottage inspection. The leaking from carts containing manurial matter has caused complaint. 75 nuisances were dealt with and all abated.

8. Bye-laws. Bye-laws for scavenging are advocated.

9. Schools.

10. Injectious Diseases. An outbreak of diphtheria at Hatfield Peverel and Terling gave much trouble. All the children at Terling School were examined and about 20 swabs taken, but with negative results. About 50 per cent. of the children born now escape vaccination. Disinfection after phthisis is offered, but not always accepted. A county scheme for dealing with tuberculosis is advocated.

11. Further Sanitary Requirements. Improved water supplies. Sewerage of Hatfield Peverel and Kelvedon. Conversion of all privies into pail closets, where surroundings make it possible regularly to empty them.

CHELMSFORD.

Medical Officer of Health ... J. C. THRESH, M.D., D.SC., D.P.H.

Area in acres ...	...	...	83,849
Population, 1901 census ...		...	23,717
,, 1910 estimated		...	22,770
Deaths registered in the district		...	260
Corrections ...	Additions	...	25
,, ...	Deductions	...	8
Nett deaths ...	...	...	277

	1910.		Mean 1900-9.
Nett Death-rate	12·2	...	13·3
Infantile Mortality	96	...	79
Birth-rate	19·2	...	22·8
Cases of disease notified per 1,000 population	5·1	...	—

The report is printed, with diagrams relating to public water supplies, deep wells, etc.

1. General. The whole district drains into the Chelmer, and is upon the London clay, which is over most of the area covered with gravel or boulder clay. The elevation varies from 44 feet to 366 feet + O.D. Most of the population is dependent upon agriculture, but many are employed in the borough of Chelmsford and many in London.

2. House Accommodation. Population is chiefly increasing near the borough and in these parishes the housing is satisfactory. In the purely rural areas there is a general want of good cottages, and especially with three bedrooms. The subject has received a great deal of attention but for reasons given in the report the Council does not feel called upon to provide the houses. The erection of new houses is efficiently supervised.

3. Water Supply. The public supplies are well maintained. Water is derived from deep wells and springs, and mains ramify through a considerable portion of the district. The Local Government Board has approved plans for a deep well scheme for the supply of the rapidly developing parish of Broomfield. Certain parishes, such as Stock and Buttsbury, and West Hanningfield are badly supplied, but no scheme has yet been devised to provide them with water at a reasonable cost. The difficulty in obtaining satisfactory supplies to dairy farms is commented upon.

4. Milk and Food. There are 116 registered cowkeepers, most of whom send milk to London or adjacent towns. More cows are being groomed, and cowsheds generally are being better kept, but there is still much room for improvement, especially in the smaller holdings. There is no systematic veterinary inspection of cows, but whenever deemed necessary the Medical Officer of Health has power to take a veterinary surgeon with him to inspect milk cows. Slaughterhouses, bakehouses, etc., are regularly inspected. A diseased carcass was found in one slaughterhouse but as it was alleged to be intended for the kennels the Clerk did not recommend seizure. Suggestions are made for remedying this unsatisfactory state of affairs. No tuberculous meat has been discovered.

5. Sewerage, Sewage Disposal, and River Pollution. In Ingatestone, Widford, and Great Baddow there are many w.c's, but elsewhere pail closets are in general use. There are comparatively few privies and these are gradually being "converted." There are satisfactory sewage works at Writtle and Ingatestone, and Widford and Great Baddow drain into the Chelmsford system. Directly or indirectly a certain amount of polluting matter reaches the Chelmer. A scheme for sewering Broomfield has been prepared and the Local Government Board has sanctioned the purchase of the land for sewage disposal purposes. The scheme cannot be proceeded with until the water

supply is completed and the borrowing powers permit. The Chelmer is, to Chelmsford, probably the purest stream in Essex, but sluggish rivers flowing thr agricultural land can never yield a pure water.

6. House Refuse. Several parishes are scavenged by contractors and the wo done satisfactorily. Few nuisances arise from accumulations of house re Scavenging has now commenced in Ingatestone and Widford where the nuisa were most frequent.

7. Nuisances. One or two parishes are systematically inspected each mo 610 cottages were inspected during the year. 270 nuisances were detected and abated.

8. Bye-laws. Seven series have been adopted, relating to (1) Removal of ho refuse, etc., (2) to Nuisances, (3) New streets and buildings, (4) Slaughterhous (5) Dairies and cowsheds, (6) Offensive trades, and (7) Tents, vans, and sheds.

9. Schools. These are inspected and the sanitary condition, on the whole, very satisfactory.

10. Infectious Diseases. There was an epidemic of mild scarlet fever in Ingat stone in the early months of the year. Milk was strongly suspected as the caus but proof was lacking. The joint hospital was overtaxed for a short period. Co siderable use is made of "shelters" for the use of consumptive patients in this distric owing to the advocacy of Dr. Lyster, the Poor Law Medical Officer for the Grea Baddow area. There are 3 small sanatoria using these shelters in Sandon and Litt Baddow. Dr. Lyster's enthusiasm led to the formation of a County Association fc the Prevention of Tuberculosis, from which great things are looked for in the future.

11. Further Sanitary Requirements include improved water supplies, sewerag of certain parishes, abolition of all privies, provision of receptacles for house refuse veterinary inspection of milch cows, etc.

DUNMOW.

Medical Officer of Health ... E. E. GOODBODY, M.D.

Area in acres		73,503
Population, 1901 census		15,705
„ 1910 estimated... ...		15,440
Deaths registered in the district ...		203
Corrections ... Additions ...		1
„ ... Deductions ...		7
Nett deaths		197
	1910.	Mean 1900-9.
Nett Death-rate	12·7	15·2
Infantile Mortality	50·8 ...	83·2
Birth-rate	24·2 ...	21·7
Cases of Disease notified per 1,000 population	1·3 ...	—

The report is printed.

1. General.

2. House Accommodation. Many of the houses in the district are undesirable, and in nearly all parishes there is need for more houses with three bedrooms. A report made on the parish of Lindsell led to each owner of land on which cottages were required being communicated with. Only one owner responded and he promised to erect four cottages, but has not yet done so. Three houses have been closed and 40 repaired. Forty houses have been erected during the year.

3. Water Supply. Great Dunmow and Felstead are supplied by the West Essex Water Co. The Hatfield Broad Oak Water Co. supplies Hatfield Town and Heath, obtaining water from the Herts & Essex Water Co. Thaxted wants a public supply. Other districts are supplied from wells, public and private. In a few places pond water is used.

4. Milk and Food. There are 64 registered cowkeepers. Many of their premises leave much to be desired. About 1,000 cows are kept and two-thirds of the milk is sent to London. No tuberculous cows have been reported. The local milk is believed to be produced under less cleanly conditions than that sent to London. The lids generally used for milk churns was pointed out to be insanitary. There are 17 slaughter-houses and 35 bakehouses. All have been inspected. On 10 occasions unsound meat has been detected and destroyed. At the Bacon Factory, where 300 to 400 pigs are killed weekly, a veterinary surgeon is employed by the Company to inspect all carcases after slaughter, and every precaution taken to protect the public.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. A scheme for sewering Dunmow has been approved. The estimated cost is £5,395. A report has been presented with reference to Thaxted, but nothing has yet been done. A nuisance arises from the discharge of sewage into a ditch on the Dunmow Road. The Felstead sewers discharge into Stebbing Brook. Elsewhere there are road drains which have been converted into sewers, and which discharge slop water into brooks and ditches. The County Council had directed their attention to some of these, and the Lea Conservancy has directed attention to the pollution of Pincey Brook by the sewage of Hatfield Town and Heath.

6. House Refuse. No public scavenging is undertaken. It is required at Dunmow and Thaxted.

7. Nuisances. 254 nuisances were detected and 240 abated.

8. Bye-laws. Regulations under the Dairies and Milkshops Order are in force. Various bye-laws are under consideration but have not yet been adopted.

9. Schools. The sanitary conditions of the public elementary schools are kept under observation.

10. Infectious Diseases. There is an isolation hospital with disinfector. The Council rent a field for a tent hospital should small-pox be introduced. Spitting cups and disinfectants are supplied to notified cases of tuberculosis.

11. Further Sanitary Requirements. Improved water supplies, especially to Thaxted. Improved systems of sewerage in several parishes. Building and other bye-laws. Scavenging of populous places.

EPPING.

Medical Officer of Health ... TREVOR FOWLER, L.R.C.P. & S.I., D.P.H.

Area in acres		...	36,705	
Population, 1901 census ...		...	12,782	
,, 1910 estimated...		...	14,538	
Deaths registered in the district		...	144	
Corrections ...	Additions	...	23	
,, ...	Deductions	...	0	
Nett deaths		...	167	
		1910.		Mean 1900-9.
Nott Death-rate		11·4	...	12·3
Infantile Mortality		64·6	...	83·8
Birth-rate		20·2	...	22·3
Cases of disease notified per 1,000 population		3·6	...	—

The report is printed.

1. General. An almost purely agricultural district, with a good deal of forest. The subsoil is clay, covered here and there with gravel or boulder clay.

2. House Accommodation. The provision of decent cottages for labourers is one of the most important requirements of the district. 47 old cottages were put in repair during the year.

3. Water Supply. The Herts and Essex Co.'s mains have been extended to Nazeing. 10 new connections have been made in Chigwell district and 23 in the Harlow district. Nearly the whole district is now supplied either by this Company or the Metropolitan Water Board. The supply from both has been well maintained and given no cause for complaint.

4. Milk and Food. In this milk producing district there are many houses in which milk is never seen. It is difficult to obtain even for rearing children. There are 71 cowkeepers, of whom 43 send their milk away, chiefly to London. The regulations are generally enforced, but in one case, where the milk is cooled in the cowshed no action has yet been taken. Several seizures of unsound meat have been made including the carcases of two tuberculous cows. Most of the 8 slaughterhouses are capable of being considerably improved.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Schemes for the sewerage of Potter Street, Weald Gullet, and Thornwood have been approved by the Local Government Board and will be proceeded with. The difficulties in connection with Roydon are not yet overcome and the nuisances arising from defective sewerage becomes worse each year. Sheering polluted ditches, which discharge into the Lee. Where there are public sewers, as at Harlow, Chigwell, and Theydon Bois, the houses are provided with w.c's. In other parts of the district the old middens and cesspits are being steadily superseded. Pail closets are scavenged weekly at Burnt Mill and Notteswell Cross.

6. House Refuse. This is removed weekly at Harlow, by a contractor, only fortnightly, at Potter Street and Chigwell. Removal is required at Theydon Bois.

7. Nuisances. There are two Inspectors. 431 cottages were inspected. The nuisances detected required the service of 452 notices. Number of nuisances found and remaining unabated not stated.

8. Bye-laws. Bye-laws for slaughterhouses required. (Urban powers can be obtained enabling such bye-laws to be adopted.—J.C.T.)

9. Schools.

10. Infectious Diseases. The isolation hospital serves for both the urban and rural districts, but the building belongs to the Rural Council. Diphtheria during the last two years has been unusually prevalent in Roydon, North Weald, and Theydon Bois. The "trippers" are believed to introduce infectious diseases into the district. Antitoxin is supplied free of charge for poor persons, either for curative or prophylactic purposes. A few portable open air shelters are being provided for consumptives to place in cottage gardens or other suitable places. Referring to this disease it is urged "that no kind of treatment, whether curative or prophylactic, will succeed in eradicating consumption, which leaves out of account the improved environment and better housing of the people."

11. Further Sanitary Requirements. Only referred to in the body of the report. *Vide* Nos. 2, 8, 10.

HALSTEAD No. 1.

Medical Officer of Health ... J. W. ASHWORTH, M.D.

Area in acres	18,072
Population, 1901 census	4,481
,, 1910 estimated... ...	4,779
Deaths registered in the district ...	36
Corrections ... Additions ...	9
,, ... Deductions ...	—
Nett deaths	45

	1910.	Mean 1900-9.
Nett Death-rate	9·4 ...	12·6
Infantile Mortality	11 ...	91
Birth-rate	17·8 ...	20·1
Cases of disease notified per 1,000 population	3·8 ...	—

The report is printed.

1. General. An undulating district with clay and gravel soils. Chiefly dependent upon agriculture. At Earls Colne about 300 men are employed at a foundry and 100 women and girls at a silk factory.

2. House Accommodation. There is no pressing need for new houses, but if a few were built some of the older ones would cease to be occupied. 41 cottages were put in habitable repair during the year.

3. Water Supply. Fairly well supplied from shallow well. There are several public wells. A proper water supply is required for Earls Colne.

4. Milk and Food. The 25 registered cowsheds are periodically inspected, and "Regulations" have been adopted. The result has been that the majority of the cowsheds have been improved. Bakehouses and slaughterhouses are inspected. No diseased meat has been discovered.

5. Sewerage, Excrement Disposal, and River Pollution. There is no system of sewers, and only in Earls Colne is such required. Privies are mostly in vogue, but pail and earth-closets are being substituted as occasion occurs. A sewer ditch at Earls Colne and one at Colne Engaine have been cleaned out.

6. House Refuse. Buried in gardens, burnt, or carted away. Scavenging for Earls Colne is desirable.

7. Nuisances. 740 cottages have been inspected. 155 nuisances were discovered and 117 abated.

8. Bye-laws. None with the exception of those for dairies and cowsheds,

9. Schools are inspected.

10. Infectious Diseases. Cases of scarlet fever occurred in three parishes. There was no epidemic of any kind.

11. Further Sanitary Requirements. "A water supply, a drainage system, and systematic scavenging for Earls Colne."

HALSTEAD No. 2.

Medical Officer of Health ... J. B. BROMLEY, M.R.C.S.

Area in acres	20,518
Population, 1901 census	5,695
,, 1910 estimated... ...	5,695
Deaths registered in the district ...	47
Corrections ... Additions ...	7
,, ... Deductions ...	0
Nett deaths	54

	1910.		Mean 1900-9.
Nett Death-rate	9·5	...	13·7
Infantile Mortality	56	...	66
Birth-rate	21·9	...	21·4
Cases of disease notified per 1,000 population	1·0	...	—

The report is printed.

1. General.

2. House Accommodation. Cottages are being systematically inspected. Several houses have been condemned, and many placed in repair.

3. Water Supply. Parishes chiefly supplied from public pumps, of which there are 31. Care is taken to prevent the well water becoming contaminated. An improved supply is required for part of Sible Hedingham.

4. Milk and Food. Dairies, cowsheds, slaughterhouses, etc., are inspected. All found satisfactory. No tuberculous meat has been found.

5. Sewerage, Excrement Disposal and River Pollution. There are sewers in several parishes discharging into ditches. These ditches are periodically cleansed. In one or two instances there are tanks to intercept solids. At Castle Hedingham, where w.c's abound, the sewage is treated before being allowed to flow into the river. In the district there are 203 w.c's, 251 pail and earth closets and 793 privies.

6. House Refuse. There is no public scavenging.

7. Nuisances. 568 cottages were examined, 105 nuisances detected, and 89 abated.

8. Bye-laws. There are no building bye-laws.

9. Schools. The sanitary arrangements of several have been improved. At Sible Hedingham, Great Yeldham, and Tilbury there is still no water supply on the premises.

10. Infectious Diseases. Save a few cases of erysipelas, no infectious diseases were notified. Influenza caused the closing of one school for a short period. There is a small isolation hospital. It would be used for small-pox if required. After death of a consumptive the house is disinfected.

11. Further Sanitary Requirements.

LEXDEN AND WINSTREE.

Medical Officer of Health ... J. W. COOK, M.D.

Area in acres	...	69,637
Population, 1901 census ...	...	18,572
,, 1910 estimated...	...	20,190
Deaths registered in the district	...	218
Corrections ... Additions	...	12
,, ... Deductions	...	2
Nett deaths	...	228

	1910.		Mean 1900-9.
Nett Death-rate	11·2	...	13·6
Infantile Mortality	38·16	...	82·3
Birth-rate	19·5	...	21·2
Cases of disease notified per 1,000 population	2·45	...	—

The report is printed.

1. General. A purely agricultural district, save on the coast and Colne estuary, where many seafaring people reside.

2. House Accommodation. There is a gradual improvement in the housing of the working classes, and the water supply and drainage of existing houses receive special attention.

3. Water Supply. The only public services are at Stanway, from the Colchester mains, and at Rowhedge, from a deep well in the chalk. Elsewhere the supply is chiefly from shallow wells. The Local Government Board has been in communication with the Council with reference to the water supply to several parishes, but nothing has, as yet, been done.

4. Milk and Food. A new inspector has been appointed and it has been arranged that dairies, cowsheds, etc., shall be systematically visited. There is no veterinary inspection of cows nor has the Medical Officer of Health power to call one in. The 14 slaughterhouses and 32 bakehouses have been regularly inspected and found in good order.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Privies and pail closets are in general use. There is a difficulty in getting people to use ashes or earth. At Rowhedge and West Mersea privies, pail closets, and cesspools are emptied by a contractor, but complaints are often made. He does not possess a proper tank cart and pump.

6. House Refuse. Except at Rowhedge and West Mersea the house refuse is disposed of by the occupiers. Many houses have no ashpits, and dirt-holes near the houses are general. At the places named a contractor removes the refuse, but the Council does not insist upon receptacles of any kind being provided.

7. Nuisances. A new inspector has been appointed, who will be more in touch with the Medical Officer of Health than his predecessor. 96 nuisances were detected during the year and 83 abated.

8. Bye-laws. There are bye-laws for new buildings and for tents, vans, and sheds.

9. Schools. These are generally satisfactory. The water supply to each school is about to be submitted to analysis.

10. Infectious Diseases. There is no isolation hospital or disinfecting station and this want is felt. Disinfection is carried out by means of formalin spray or vapour, and a portable disinfecter. Voluntary notification of phthisis is a failure, and its notification should be made compulsory. Such cases as become known are visited, a cartoon of directions left, etc.

11. Further Sanitary Requirements.

MALDON.

Medical Officer of Health ... J. C. THRESH, M.D., D.SC., D.P.H.

Area in acres	82,342
Population, 1901 census	14,633
,, 1910 estimated... ...	16,100
Deaths registered in the district ...	180
Corrections ... Additions ...	29
,, ... Deductions ...	2
Nett deaths	207

	1910.	Mean 1900-9.
Nett Death-rate	12·95	13·85
Infantile Mortality	88	80·3
Birth-rate	22·5	24·4
Cases of disease notified per 1,000 population	1·9	—

The report is printed.

1. General. A large thinly populated district, almost divided into two separate portions by the estuary of the Blackwater. Subsoil London clay capped on the hills with gravel, and on the extensive marshes with alluvium. There are many fishermen and yachtsmen at Tollesbury and Bradwell, and at Heybridge most of the male adults are employed at the ironworks and motor car works. Elsewhere the district is purely agricultural.

2. House Accommodation. The Housing of the Working Classes has received much attention in this district the Council having erected 6 cottages at Bradwell, and being about to erect 6 at Tolleshunt D'Arcy. In several parishes more cottages are needed. Many houses have been erected in recent years, especially at Tiptree and Heybridge. The erection of new houses is well supervised and there are few cottages without ample space around. Tent and van dwellers congregate at Little Totham and have given rise to trouble.

3. Water Supply. The Purleigh waterworks, with its 31¾ miles of mains, the Tiptree works supplying Tiptree, and the Southminster works supplying the village of that name are well maintained. Improvements in the Purleigh works are contemplated to increase the pressure at the end of the mains, and to reduce the cost of pumping. The parishes of Heybridge and Tollesbury require water supplies; the former is being considered and the latter is being proceeded with, a trial bore being made. The supply in other parishes is being improved.

4. Milk and Food. There is a marked improvement in the dairies and cowsheds due to frequent inspection. Some are now "models" but others leave much to be desired both in construction and cleanliness. Slaughterhouses and bakehouses are fairly satisfactory. Diseased animals are slaughtered by one or two butchers, but it is always affirmed that the flesh is for the kennels. No formal seizure has been made of any food.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. There are comparatively few w.c's in the district, and very few privies. Pail closets are generally used. There are sewage disposal works at Tollesbury, Tillingham, Tolleshunt D'Arcy, and Latchingdon. At Heybridge the sewers discharge into a tidal creek. Elsewhere a good deal goes into ditches and only by constant attention are nuisances prevented. There is no pollution of any non-tidal river.

6. House Refuse. Scavenging is undertaken by the Council at Tolleshunt D'Arcy, Southminster, Tollesbury, and Heybridge Basin. Elsewhere it is disposed of upon gardens and allotments.

7. Nuisances. 210 nuisances were detected during the year and 194 abated. Legal proceedings were taken in four cases, and convictions obtained in two. 804 cottages were systematically inspected.

8. Bye-laws. A complete list of urban powers, bye-laws, and regulations is given. There are bye-laws relating to New Streets and Buildings, Nuisances, Slaughterhouses, Tents, Vans, and Sheds, Dairies and Cowsheds, and relating to the use of Totham Plains.

9. Schools. The sanitary arrrangements and water supplies are under constant supervision, and improvements are effected where possible.

10. Infectious Diseases. These are efficiently dealt with. There is an isolation hospital for the joint use of the Borough of Maldon and the northern portion of the Rural District. Consumptive patients are visited and advised, etc. Voluntary notification found useless. The Guardians are considering the question of making special provision for persons suffering from tuberculosis of the lungs.

11. Further Sanitary Requirements. *Vide* the section relating to this subject.

ONGAR.

Modical Officer of Health ... W. R. ROBERTS, M.B.

Area in acres	...	47,712
Population, 1901 census ...	...	10,044
,, 1910 estimated...	...	10,550
Deaths registered in the district	...	116
Corrections ... Additions	...	0
,, ... Deductions	...	0
Nett deaths	...	116

	1910.		Mean 1900-9.
Nett Death-rate	11·0	...	13·0
Infantile Mortality	67·	...	88·
Birth-rate	22·2	...	22·5
Cases of disease notified per 1,000 population	3·8	...	—

The report is printed.

1. General. A purely agricultural district.

2. House Accommodation. There is a demand for cottages in the northern portion of the district. Eighteen new cottages have been erected during the year. Many houses have been reported upon under the Housing and Town Planning Act.

3. Water Supply. The Essex and Herts Co. supply Chipping Ongar, Bobbingworth, Greenstead, Lambourne, and part of Stanford Rivers. The mains have recently been extended to Lambourne End. There is difficulty in obtaining good water in many parishes.

4. Milk and Food. There are 91 registered cowkeepers. The cowsheds, etc., are in good order. Four animals were found by the London County Council Inspectors to be suffering from tuberculosis of the udder. These were isolated. Slaughterhouses are inspected. No unsound food has been seized.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. The pail system is being extended. Abridge and Chipping Ongar are sewered and have disposal works

Toot Hill is also sewered. High Ongar sewerage has not been proceeded with. The River Roding flows through the district and is fairly free from pollution.

6. House Refuse. There is a weekly collection in Chipping Ongar. The refuse is burnt in a small kiln at the sewage works. The refuse at High Ongar and Marden Ash should also be collected, as considerable difficulty is experienced in disposing of the refuse.

7. Nuisances. Only one nuisance of a serious character has been reported—a ditch on the Chelmsford Road. 66 other nuisances were detected and 62 abated.

8. Bye-laws.

9. Schools. The sanitary condition is reasonably good throughout. A well is being sunk at Stapleford Abbotts School.

10. Infectious Diseases. There is a hospital shed in which tents, bedding, etc., are stored and the tents can be erected in the field when required. Some cases are sent to London Hospitals. The Council possess an Emergency Disinfector, spraying apparatus, etc. The pauper cases are the only cases of phthisis notified. These are visited and instructed. A lady has presented the Council with a Lyster tent for lending out. There is ample accommodation in the Union Infirmary.

11. Further Sanitary Requirements. Abatement of cesspool nuisance in High Ongar. A better water supply for the same village.

ORSETT.

Medical Officer of Health ... W. ALLINGHAM, M.R.C.S., L.R.C.P., L.S.A.

Area in acres	39,803	
Population, 1901 census	19,912	
,, 1910 estimated	24,658	
Deaths registered in the district ...	290	
Corrections ... Additions ...	0	
,, ... Deductions ...	36	
Nett deaths	254	

	1910.		Mean 1900-9.
Nett Death-rate	10·3	...	13·6
Infantile Mortality	85·9	...	123
Birth-rate	24·5	...	33·5
Cases of disease notified per 1,000 population	2·6	...	—

The report is printed.

1. General. Chiefly on a chalk outcrop. Much marsh land on banks of Thames. Mostly flat and low, but at Laindon Hill elevation is 385 feet above O.D. Occupation chiefly agriculture, but many persons employed at the Tilbury Docks and the cement works.

2. *House Accommodation.* Overcrowding does not prevail to any great extent. Eleven houses have been reported as unfit for human habitation.

3. *Water Supply.* The South Essex and Southend Water Co. supply most of the district. Mains are laid in Tilbury Docks, Little and West Thurrock, Stifford, Aveley, North and South Ockendon, Stifford, Horndon, Corringham, Fobbing, Orsett, and part of Laindon Hills. Bulphan and part of North and South Ockendon are supplied from artesian wells. Ten samples of water were examined during the year, six of which were unfit for domestic purposes. Three wells were closed.

4. *Milk and Food.* Bakehouses and slaughterhouses are in good condition.

5. *Sewerage, Excrement Disposal, and Pollution of Rivers.* Tilbury Docks, part of Chadwell St. Mary, and Little Thurrock are connected with the Grays sewers. Cesspools are emptied by the Council's men in eight parishes. Stanford-le-Hope has a sewage works (but considerable extensions are contemplated). "In spite of several Local Government Board enquiries, the present inadequate system of disposal of sewage in West Thurrock still continues to be a serious danger to public health." Some ditches are polluted by the sewage of Orsett and other parishes, but the Mardyke and Stanford Brook are not reported to be polluted.

6. *House Refuse..*

7. *Nuisances.* About 254 houses have been inspected.

8. *Bye-laws.* Bye-laws regulating new streets and buildings, and relating to dairies and cowsheds are in force.

9. *Schools.*

10 *Infectious Diseases.* A small outbreak of diphtheria occurred at South Stifford, which ultimately necessitated closing the school. One case of small-pox occurred. Isolation accommodation is provided by the Grays and Orsett Joint Hospital Board. The hospitals are well equipped. Bedding, etc., is taken to the hospital for disinfection, and rooms disinfected by means of formalin lamps.

11. *Further Sanitary Requirements.*

ROCHFORD.

Medical Officer of Health ... M. H. RAPER, M.D., D.P.H.

Area in acres		...	56,668	
Population, 1901 census ...		...	14,457	
,, 1910 estimated ...		...	16,870	
Deaths registered in the district		...	211	
Corrections ...	Additions	...	7	
,, ...	Deductions	...	46	
Nett deaths		...	172	
		1910.		Mean 1900-9.
Nett Death-rate		10·2	...	12·6
Infantile Mortality		72·4	...	93·5
Birth-rate		25·3	. .	26·4
Cases of disease notified per 1,000 population		4·6	...	—

The report is type-written.

1. General. This district lies between the rivers Crouch and Thames. There is much low-lying marsh land intersected by creeks. Subsoil chiefly clay, covered on the higher ground with sand or gravel. There is some brick-earth. The chief industries are agriculture, brickmaking, and navigation. Malaria was very prevalent 40 years ago, and cases are still occasionally met with. Adenoids, throat affections and chronic rheumatic complaints are common.

2. House Accommodation. Houses are fairly plentiful, but in the more remote parts the cottages are in a poor state of repair. Nevertheless, being let at 2s. to 3s. 6d. a week, and having good gardens, they are eagerly sought after. Modern cottages let at 5s. to 7s. 6d. a week, which is more than a labourer can afford.

3. Water Supply. From a deep well at South Benfleet six parishes are supplied. The water is of good quality and laid on to the houses. Great Wakering is supplied from street standpipes connected with the Southend Co.'s mains. Water has to be carted to Hull Bridge, and on Canvey Island part is supplied from a deep well and part with rain water.

4. Milk and Food. The larger dairy farms are excellent; many of the smaller leave much to be desired.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. There are many w.c.'s discharging into cesspools, and these are often a source of nuisance. Contractors empty certain earth closets and privy middens, and this should, in future, be done between 8 p.m. and 7 a.m. At Rochford there is a system of sewage purification and at South Benfleet the sewage is dosed with alumino-ferric and the clarified effluent discharged into the tidal creek.

6. House Refuse. Barling, Rayleigh, Eastwood, Rochford, Great and Little Wakering, Hadleigh, and Little Stambridge have public scavengers. South Benfleet should be scavenged and the Rayleigh area should be extended so as to include the houses between Weir Farm and Rayleigh House.

7. Nuisances. An inspector has been appointed under the Housing and Town Planning Act to examine all the cottages in the district. Several parishes have been inspected. Of 322 houses inspected, defects were found in 125. Two houses have been closed. Work is in progress on the others.

8. Bye-laws.

9. Schools. These are in good sanitary condition and the water supply satisfactory.

10. Infectious Diseases. The incidence of typhoid fever is steadily decreasing, "in a great measure due to improved water supply and more strict supervision of wells and cesspools in the district." Mumps and whooping cough were prevalent. The payment for notification of all cases of phthisis is advocated.

11. Further Sanitary Requirements.

ROMFORD.

Medical Officer of Health ...		A. WRIGHT, M.R.C.S.	
Area in acres		...	29,723
Population, 1901 census ...		...	19,018
„ 1910 estimated		...	24,500
Deaths registered in the district		...	232
Corrections ...	Additions	...	22
„ ...	Deductions	...	0
Nett deaths		...	254

	1910.		Mean 1900-9.
Nett Death-rate	10·3	...	12·6
Infantile Mortality	63·8	...	103
Birth-rate	24·9	...	29
Cases of disease notified per 1,000 population	3·7	...	—

The report is printed.

1. General. Includes several populous parishes almost urban in character. There is no particular occupation likely to affect the public health.

2. House Accommodation. Fairly adequate and satisfactory, save in a few localities. Erection of new houses proceeds under proper supervision.

3. Water Supply. The South Essex Water Co.'s mains ramify throughout the district and most of the houses have the water laid on to the premises. Private wells yielding an impure water are closed.

4. Milk and Food Supply. Dairies, cowsheds, slaughterhouses, bakehouses, etc., are regularly inspected. One cowshed was closed on account of its unsatisfactory condition. Greater cleanliness is desirable in certain of these places where food is produced or stored.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. Nearly the whole district is now sewered and there are several sewage disposal works. Save in the outlying parts there are w.c.'s connected to the sewers. There are many cesspools still and these are emptied by the Council's men using a " motor cesspool engine."

6. House Refuse. This is removed by the Council's contractors. Sanitary bins are required to be provided.

7. Nuisances. Vigilant attention is given to insanitary conditions by the two inspectors. In one inspector's district 117 nuisances were abated and in the other 338. One summons appears to have been taken out and a conviction obtained.

8. Bye-laws. Bye-laws for the regulation of offensive trades are required, as there are several such on the banks of the Thames in the parishes of Hornchurch and Rainham.

9. Schools. All the public elementary schools are in a good sanitary condition.

10. Infectious Diseases. There is a hospital with 40 beds for the joint use of the urban and rural districts. It is provided with a disinfector. At the Union Workhouse there are 20 available beds for consumptive patients in special wards and 6 outdoor shelters for treatment of earlier cases.

11. Further Sanitary Requirements.

SAFFRON WALDEN.

Medical Officer of Health ... W. ARMISTEAD, M.B.

Area in acres				59,975
Population, 1901 census				10,764
,, 1910 estimated ...				9,239
Deaths registered in the district ...				115
Corrections ...	Additions ...			19
,, ...	Deductions ...			0
Nett deaths				134
		1910.		Mean 1900-9.
Nett Death-rate		14·5	...	15·7
Infantile Mortality		61	...	95
Birth-rate		26·4	...	22·7
Cases of disease notified per 1,000 population		·85	...	2·8

The report is printed. The population given above is calculated from the census returns, it is quite probable that it is an underestimate, and therefore that the death-rate is too high.

1. General. This undulating district is on the chalk, which is covered with gravel in the valleys and boulder clay on the higher ground. The elevation varies from 120 to over 400 feet above the sea level. The inhabitants are dependent upon agriculture.

2. House Accommodation. Cottages with three bedrooms are especially wanted in Great Chesterford, Newport, Hempstead, Great Sampford, and Hadstock. There are no building bye-laws. There are several old and defective houses, but the general condition is fair.

3. Water Supply. There is no public service through mains, but most parishes have one or more public wells. Wimbish is chiefly supplied by ponds. Several suggestions for improving the supply have long been under consideration.

4. Milk and Food. There are 16 registered cowkeepers. With two exceptions their premises are fairly satisfactory. There is no veterinary inspection. The 10 slaughterhouses are in fair condition. No unsound food has been discovered.

5. Sewerage, Excrement Disposal, and River Pollution. Excrement is chiefly disposed of upon gardens. Privies and pail closets in vogue. Rickling and Quendon have a system of sewerage. In Newport and Great Chesterford the houses are connected with the road drains and the slop water pollutes the Cam.

6. House Refuse. Scavenging is undertaken in Great Chesterford, but in no other parish.

7. Nuisances. 284 premises were inspected and 65 nuisances found and 64 abated. A conviction was obtained against a person who overstocked his premises with goats and other animals.

8. Bye-laws. There are bye-laws in force relating to tents, vans, and sheds, and regulations under the Dairies and Cowsheds Order. There are no building bye-laws.

9. Schools. There are 22 schools, most of which are in a fairly satisfactory sanitary condition, and most have a sufficient water supply.

10. Infectious Diseases. Only 8 cases were notified during the year. There is an isolation hospital belonging to the urban and rural districts. Cases of phthisis notified under the Local Government Board are visited and instructions given to the families. Disinfection and cleansing is undertaken where necessary.

1. Further Sanitary Improvements.

STANSTED.

Medical Officer of Health ... R. A. DUNN, M.D., D.HY., D.P.H.

Area in acres	22,954	
Population, 1901 census	6,888	
„ 1910 estimated ...	6,868	
Deaths registered in the district ...	76	
Corrections ... Additions ...	13	
„ ... Deductions ...	—	
Nett deaths	89	
	1910.	Mean 1900-9.
Nett Death-rate	12·9 ...	13·3
Infantile Mortality	48·6 ...	79·0
Birth-rate	20·9 ...	23·3
Cases of disease notified per 1,000 population	0·3 ...	—

The report is printed and bound with the reports of 8 others which together form the Combined District of East Herts and Essex.

1. General. Under Section 15 of the Local Government Act, 1894, certain powers have been delegated to the Parish Council of Stansted.

2. House Accommodation. The question of housing is engaging the Council's careful attention. During the year 20 houses have been built and 18 placed in habitable repair.

3. Water Supply. The only public supply is at Stansted, which is in the hands of a private company. Other parishes are supplied from shallow wells.

4. Milk and Food. Slaughterhouses, bakehouses, dairies and cowsheds are regularly inspected. All are fairly well kept.

5. Sewerage, Excrement Disposal, and River Pollution. Stansted alone is sewered, the Liernur system being adopted. The sewage is treated on bacteriological lines, with satisfactory results.

6. House Refuse.

7. Nuisances. Inspection is ably carried out and all nuisances attended to.

8. Bye-laws. (The Public Health Acts Amendment Act, 1907, has recently been adopted.)

9. Schools.

10. Infectious Diseases. Only two were notified during the year. There is an isolation hospital.

11. Further Sanitary Requirements.

TENDRING.

Medical Officer of Health ... J. W. COOK, M.D.

Area in acres	73,286
Population, 1901 census	20,507
„ 1910 estimated ...	22,489
Deaths registered in the district ...	277
Corrections ... Additions ...	9
„ ... Deductions ...	11
Nett deaths	275

	1910.		Mean 1900-9.
Nett Death-rate	12·2	...	12·15
Infantile Mortality	91·85	...	93·2
Birth-rate	21·3	...	23·8
Cases of disease notified per 1,000 population	3·4	...	—

The report is printed.

1. General. The district includes 27 parishes, including several with a considerable population. The whole is on the London clay, but large areas are covered with brick-earth, gravel, and sand, and a small portion with red-crag. On the foreshore there is much marshy alluvial soil. The inhabitants are chiefly engaged in agriculture but there are many sea-faring men and many employed in various maltings.

2. House Accommodation. Persons working in Suffolk factories reside in Mistley and neighbourhood, not being able to find houses over the border. This causes a scarcity of houses in the parishes near. There are many old houses, barely fit for habitation. The inspector carefully supervises new houses to see that the bye-laws are complied with.

3. Water Supply. The Tendring Hundred Water Co. supply 11 parishes, besides several urban districts. Improved supplies are wanted for Great Bentley, St. Osyth, Ardleigh, Little Holland, and Weeley. The employment of concrete tubes for lining wells is strongly advocated.

4. Milk and Food. Dairies, cowsheds, slaughterhouses, and bakehouses are regularly inspected. Cows are well kept. A veterinary surgeon is called in when required, if any cow is suspected to be suffering from tuberculosis, The foreign meat landed at Parkeston is examined by the Port officials. No unsound food has been seized.

5. Sewerage, Excrement Disposal, and Pollution of Rivers. There are more or less satisfactory systems of sewers and sewage treatment works at Parkeston, Ardleigh, Ramsey, and St. Osyth. The Mistley and Manningtree sewers discharge crude sewage into the tidal Stour. Improvements are wanted at Thorpe, St. Osyth, Lawford, Manningtree, Mistley, and Great Bentley. Pail closets are largely used and in Manningtree, Mistley, part of Lawford and Parkeston contractors empty them. The Holland Brook, the River Stour, and various watercourses receive sewage or slop water.

6. House Refuse. This is removed by scavengers in Parkeston, Manningtree, part of Lawford, and Mistley. Elsewhere dust-holes near back doors are common.

7. Nuisances. Only 36 nuisances appear to have been detected, 39 complaints were received, and 32 nuisances were abated.

8. Bye-laws. There are no offensive trades or houses let in lodgings which require bye-laws. There are a good code of building bye-laws.

9. Schools. The sanitary arrangements are frequently inspected. The common drinking cup is regarded as a great danger.

10. Infectious Diseases. There is no hospital and only a small "Emergency" disinfector. Formalin spray is used for room disinfection. Offers are made to disinfect after death or removal of a phthisical patient. This offer is sometimes refused. There has been no serious outbreak of disease during the year.

11. Further Sanitary Requirements. *Vide* paragraphs 3, 5, and 10.

TABLE A.

DEATHS IN EACH DISTRICT CLASSIFIED ACCORDING TO DISEASES.

Corresponding to Table IV. of the Local Government Board

1910.

Names of Localities.	Small-pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fever. Typhus.	Fever. Typhoid.	Fever. Other continued.	Epidemic Influenza.	Cholera.	Plague.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tubercular Diseases.	Malignant Disease, Cancer.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism.	Cirrhosis of Liver.	Venereal Diseases.	Premature Birth.	Heart Diseases.	Diseases and Accidents of Parturition.	Accidents.	Suicides.	All other causes.	All Causes.
URBAN.																																		
Barking	...	1	1	11	2	..	...	1	..	7	...	...	7	1	...	...	...	25	11	16	39	23	2	2	4	2	9	33	...	11	3	114	325
Braintree	...	...	...	...	2	...	...	...	...	2	...	...	...	...	...	...	...	4	2	9	5	1	..	...	...	...	2	11	...	3	1	34	76
Brentwood	...	...	...	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	5	3	4	...	...	3	...	3	13	1	1	1	34	73
Brightlingsea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	4	4	..	...	...	...	...	1	8	...	..	..	25	45
Buckhurst Hill	...	...	...	2	...	...	...	1	..	1	...	...	2	...	...	...	...	3	...	3	1	1	...	...	...	...	1	6	...	...	...	16	38
Burnham	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	2	...	6	2	1	...	...	...	...	1	4	...	3	...	16	36
Chelmsford	...	1	..	1	2	..	...	...	...	1	...	...	...	...	...	...	...	11	4	14	14	5	1	3	...	1	6	21	1	2	1	79	168
Chingford	...	...	...	1	...	1	...	...	...	...	...	...	...	2	1	...	...	8	5	3	4	8	1	...	3	...	2	5	2	1	5	14	57
Clacton	...	...	1	...	1	...	...	...	...	3	...	...	6	3	2	2	5	45	14	33	48	24	1	1	4	...	3	8	...	4	...	40	95
Colchester	2	1	1	12	2	...	...	5	...	22	...	...	48	15	4	4	11	111	52	93	109	107	3	11	17	2	70	51	3	37	11	497	1330
East Ham	...	12	3	24	13	...	...	...	...	17	...	...	...	1	...	...	...	5	1	5	3	5	...	...	...	...	...	4	1	3	...	185	1330
Epping	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	4	...	1	1	1	...	1	...	...	...	1	...	1	...	18	48
Frinton	...	6	1	1	2	...	...	...	...	...	...	...	6	...	...	1	...	16	5	14	5	9	...	1	1	...	6	14	...	4	1	52	146
Grays	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	8	...	7	10	2	...	1	1	...	1	26	1	...	...	33	91
Halstead	...	...	...	...	1	...	...	...	...	...	...	...	...	2	1	...	...	12	1	7	13	1	1	4	...	1	7	18	...	4	2	47	120
Harwich	...	2	5	15	3	...	...	1	...	7	...	...	2	5	...	...	...	47	24	62	42	37	2	7	4	1	34	61	5	14	2	211	601
Ilford	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	8	5	10	4	5	...	...	8	...	45	59	6	22	7	465	1112
Leigh-on-Sea	...	16	16	16	22	1	...	2	...	15	...	...	8	13	3	2	5	101	32	87	122	39	...	...	...	...	4	4	...	2	..	13	40
Leyton	...	...	...	...	2	...	...	...	...	...	...	...	...	1	...	...	...	2	2	6	2	1	...	...	1	...	2	12	1	1	..	29	68
Loughton	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	4	2	6	4	3	1	...	...	...	8	36	1	2	..	70	180
Maldon	...	3	...	...	1	...	...	...	...	2	...	...	...	...	...	...	...	17	...	15	12	14	1	...	...	...	1	9	...	1	..	36	74
Romford	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	4	4	6	5	...	...	...	...	3	5	...	7	2	14	46
Saffron Walden	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	6	2	1	...	...	...	1	3	5	...	7	2	239	620
Shoeburyness	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32	17	65	42	16	1	6	9	1	26	74	4	17	9	27	70
Southend-on-Sea	...	3	1	8	3	...	...	...	...	5	...	...	13	7	1	1	...	5	3	6	2	6	...	1	1	1	...	13	...	2	1	27	70
Waltham Holy Cross	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	88	46	74	119	111	...	...	15	3	59	67	1	1	1	1186	1186
Walthamstow	...	20	4	32	15	...	...	2	1	10	...	...	8	23	1	2	24	2	2	3	..	2	...	...	...	...	...	6	...	40	8	416	25
Walton-on-the-Naze	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	...	11	7	5	...	...	1	1	...	12	1	...	5	33	90
Wanstead	...	...	...	1	1	...	...	...	...	1	...	...	...	...	1	...	...	8	...	2	7	1	...	...	1	...	2	6	...	...	...	10	39
Witham	...	...	...	...	3	...	...	...	...	1	...	...	...	...	...	...	...	2	2	4	7	1	...	...	3	...	...	6	...	3	1	8	24
Wivenhoe	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	2	...	...	...	...	1	...	...	8	...	...	...	55	131
Woodford	...	...	...	...	...	...	...	...	...	2	...	...	1	1	1	...	...	6	2	18	7	4	...	...	5	...	12	8	...	6	...	55	131
Total	2	65	34	134	75	2	..	12	1	103	..	..	102	76	14	14	51	611	236	605	641	474	15	50	77	13	334	668	31	201	69	2873	7563
RURAL.																																		
Belchamp	...	...	...	2	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	12	2	1	...	...	...	...	...	6	...	3	1	34	65
Billericay	...	...	...	...	...	...	...	...	...	2	...	...	...	2	1	...	...	9	4	21	12	6	...	1	2	1	5	18	2	7	1	65	159
Braintree	...	1	...	2	4	...	...	...	...	4	...	...	...	...	...	...	...	17	5	26	14	11	...	...	5	...	6	18	1	6	3	119	243
Bumpstead	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4	...	2	...	...	1	...	2	7	...	1	1	15	34
Chelmsford	...	...	...	1	...	...	...	1	...	6	...	...	...	1	...	...	1	15	2	25	18	7	5	1	...	...	16	41	...	5	3	131	227
Dunmow	...	...	...	...	2	...	...	...	...	7	...	...	...	3	...	...	...	12	3	30	16	9	...	4	4	3	1	21	1	3	2	77	197
Epping	...	...	...	...	...	1	...	1	...	7	...	...	...	...	...	1	...	11	3	16	13	13	...	4	1	...	6	18	1	5	1	67	167
Halstead I.	...	...	...	...	...	...	...	1	...	2	...	...	...	3	...	...	...	8	...	5	4	...	...	...	...	...	...	4	...	1	...	22	45
Halstead II.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	1	7	6	...	...	...	...	...	1	8	1	...	...	26	54
Lexden & Winstree	...	1	...	3	...	...	...	...	...	2	...	...	...	1	...	1	1	15	4	24	26	12	1	...	...	...	1	32	3	...	...	95	228
Maldon	...	...	1	1	1	...	...	...	...	7	...	...	...	...	1	...	...	15	5	21	13	10	1	...	3	...	9	19	2	8	1	87	207
Ongar	...	1	1	3	...	...	...	...	...	1	...	...	7	11	...	1	4	5	3	12	12	5	...	...	2	...	4	7	...	4	...	53	116
Orsett	...	9	1	3	1	...	...	...	...	...	...	...	1	3	1	2	...	10	3	8	21	16	1	1	2	3	12	34	...	19	1	82	254
Rochford	...	...	...	3	3	...	...	1	...	...	...	...	...	1	...	...	...	23	5	27	22	15	...	...	...	3	7	30	...	7	...	60	172
Romford	...	4	...	7	3	...	...	...	...	5	...	...	...	...	1	...	1	8	4	20	5	6	2	...	...	...	14	43	...	6	2	82	254
Saffron Walden	...	1	...	...	...	...	...	...	...	4	...	...	...	...	1	...	...	3	6	10	8	3	1	2	...	...	4	14	...	3	2	58	134
Stansted	...	1	...	...	...	...	...	...	...	4	...	...	1	1	...	2	...	17	6	20	24	13	2	...	...	1	11	34	2	10	2	119	275
Tendring	...	1	1	4	1	...	...	...	3	...	...	...	11	24	3	9	4	189	57	310	226	136	13	17	26	7	101	367	11	97	20	1217	2970
Total	...	19	4	27	13	...	...	3	..	59	..	...	11	24	3	9	4	189	57	310	226	136	13	17	26	7	101	367	11	97	20	1217	2970

TABLE B.

DEATHS IN EACH DISTRICT CLASSIFIED ACCORDING TO AGES.
AREA, POPULATIONS, 1891, 1901 & 1910, & No. OF BIRTHS.

Names of Localities.	Area in acres, land and inland water	Population, Census 1891.	Population, Census 1901.	Increase per cent. during decennium.	Decrease per cent. during decennium.	Population, middle of 1909 (estimated to mid-year)	Persons per acre.	No. of Births.	Birth-rate.	No. of Deaths Nett.	Death-rate.	Deaths from all causes at subjoined Ages.						Deaths under 1 year per 1,000 births.
												Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	
URBAN.																		
Barking	3,803	14,301	21,547	50·7	...	32,502	8·5	900	27·6	325	9·9	38	45	18	18	93	63	97·7
Braintree	2,224	5,303	5,330	·5	...	5,330	2·4	125	23·4	76	14·2	3	1	4	3	27	38	24·0
Brentwood	460	4,949	4,932	...	·35	8,105	17·6	135	16·6	73	9·0	6	6	3	1	26	31	44·4
Brightlingsea	2,867	3,920	4,561	14·8	...	5,074	1·8	82	16·16	45	8·86	1	2	..	2	11	29	12·1
Buckhurst Hill	873	4,130	4,786	15·9	...	6,350	5·1	105	10·6	38	7·1	3	2	1	1	14	17	28·5
Burnham	4,517	2,360	2,919	23·7	...	3,326	·73	70	21·04	36	10·8	3	1	2	4	8	18	42·8
Chelmsford	2,654	11,003	12,580	14·3	...	17,800	6·2	338	18·9	168	9·4	17	15	6	13	45	72	50·2
Chinoford	2,868	2,737	4,373	59·8	...	8,310	2·9	176	21·2	57	6·85	11	8	1	2	17	18	62·5
Clacton	4,069	3,584	7,456	108·6	...	8,157	2·0	184	22·55	95	11·64	10	4	4	1	42	34	64·3
Colchester	11,333	34,559	38,373	11·0	...	42,275	3·7	958	22·6	511	12·9	87	31	15	32	179	167	90·0
East Ham	3,326	32,712	96,018	193·5	...	156,208	46·9	3,455	22·1	1,330	8·5	312	126	60	63	467	317	90·0
epping	1,420	3,223	3,789	17·6	...	4,530	3·2	92	20·3	48	10·5	5	1	2	1	20	19	54·3
Frinton	403	75	644	758·7	..	2,000	4·9	22	11·0	11	5·5	2	2	...	...	6	1	90·9
Grays	1,359	12,397	13,834	11·6	...	15,750	11·6	444	28·1	146	9·2	26	16	10	7	50	37	58·0
Halstead	647	6,056	6,073	·3	...	6,100	9·4	105	17·21	91	14·9	8	3	...	2	33	45	76·1
Harwich	1,541	8,202	10,070	22·8	...	11,522	7·5	314	27·2	120	10·4	25	6	4	9	38	38	79·6
Ilford	8,496	10,913	41,234	277·8	...	80,522	9·5	1,679	22·28	601	7·9	124	43	19	31	180	204	73·8
Leigh-on-Sea	1,527	2,103	3,667	74·0	...	7,376	4·8	144	19·5	87	11·7	15	3	4	2	30	33	104·0
Leyton	2,594	63,106	98,912	56·7	...	123,300	47·5	3,011	24·4	1,112	9·0	191	98	41	47	389	346	63·4
Loughton	3 961	3,889	4,730	21·9	...	6,100	1·5	117	19·2	40	6·6	7	1	...	4	17	11	59·8
Maldon	3,028	5,397	5,565	3·1	...	5,739	1·9	128	22·3	68	11·8	9	4	2	3	21	29	70·0
Romford	5,630	10,473	13,656	30·4	...	16,990	3·0	393	23·1	180	10·5	27	5	3	5	52	88	68·7
Saffron Walden	7,502	6,104	5,896	...	3·4	6,525	·86	102	15·6	74	11·3	6	2	3	4	21	38	59·0
Shoeburyness	1,036	2,990	4,081	36·5	..	4,900	4·7	156	31·8	46	9·3	7	1	2	4	22	10	44·8
Southend-on-Sea	5,172	13,242	28,857	117·9	...	64,989	12·5	1,150	17·69	620	9·54	101	27	18	18	244	212	87·62
Waltham Holy Cross ...	11,017	6,066	6,549	8·0	...	7,000	·63	145	20·7	70	10·0	5	2	...	...	27	36	34·4
Walthamstow	4,343	46,346	95,131	105·3	...	141,748	32·5	3,197	22·6	1,186	8·4	283	142	56	43	382	280	88·5
Walton on-the-Naze	2,065	1,586	2,014	27·0	..	2,410	1·2	38	15·8	25	10·37	2	3	2	1	10	7	52·6
Wanstead	1,679	7,043	9,179	30·3	...	14,000	8·3	200	14·2	90	6·4	6	2	2	3	44	33	30·0
Witham	3,706	3,444	3,454	·3	...	3,640	·98	69	18·9	39	10·7	4	0	3	1	9	22	58·0
Wivenhoe	1,564	2,411	2,560	4·9	...	3,000	1·9	43	14·3	24	8·0	2	4	...	...	7	11	46·5
Woodford	2,161	11,024	13,798	25·2	...	20,365	9·4	351	17·2	131	6·4	25	5	4	3	39	55	71·2
Total	109,439	345,679	576,508	66·8		840,945	7·68	18,428	21·9	7,563	8·99	1,421	611	279	323	2,570	2,359	77·1
RURAL.																		
Belchamp	26,500	5,719	4,847	...	15·3	4,840	·18	91	18·8	65	13·4		3	1	1	25	30	54·9
Billericay	49,391	15,606	17,5 4	12·2	...	15,192	·3	362	23·8	159	10·4	30	5	2	7	48	67	82·8
Braintree	62,355	19,734	18,109	...	8·2	18,106	·29	314	17·3	243	13·4	17	10	10	10	69	127	64·1
Bumpstead	11,874	2,886	2,541	...	11·3	2,230	·18	61	27·3	34	15·2	5	3	2	...	5	19	82·0
Chelmsford	83,849	23,174	23,717	2·3	...	22,770	·27	438	19·2	277	12·2	42	6	5	6	75	144	96·0
Dunmow	73,503	16,674	15,705	...	5·8	15,440	·21	374	24·22	197	12·7	19	6	5	6	59	102	50·8
Epping	39,005	12,167	12,783	5·1	...	14,538	·37	294	20·2	167	11·4	19	10	2	7	41	88	64·6
Halstead I.	18,200	4,764	4,481	...	5·9	4,779	·26	85	17·78	45	9·4	1	...	...	3	12	29	11·0
Halstead II.	20,512	6,049	5,695	...	5·9	5,695	·27	125	21·9	54	9·48	7	1	1	6	9	31	56·0
Lexden and Winstree ...	69,485	19,281	18,586	...	3·6	20,190	·29	393	19·46	228	11·29	15	10	8	5	62	131	38·1
Maldon	82,342	15,741	14,633	...	7·0	16,100	·19	362	22·5	207	12·95	32	6	6	14	43	106	88·0
Onoae	47,236	10,557	10,044	..	·49	10,550	·22	239	22·65	116	11·0	16	4	2	...	34	60	67·0
Orsett	39,939	14,913	19,912	33·5	...	24,658	·61	605	24·5	254	10·3	62	28	6	15	93	60	85·9
Rochford	55,386	11,931	14,565	22·1	...	16,870	·3	428	25·3	172	10·2	31	12	5	13	50	61	72·4
Romford	29,723	14 326	19,018	32·8	...	24,600	·82	611	24·9	254	10·3	39	18	7	8	86	96	63·8
Saffron Walden	59,975	12,458	10,764	...	13·6	9,239	·15	244	26·4	134	14·5	16	8	2	1	35	72	65·0
Stansted	22,954	6,908	6,888	...	·3	6,868	·29	144	20·9	89	12·9	7	2	4	...	19	57	48·6
Tendring	73,131	19,904	20,346	2·2	..	22,489	·3	479	21·29	275	12·2	41	13	8	6	66	141	91·8
Total	865,410	232,792	240,132	3·2		255,654	·29	5,649	22·1	2,970	11·6	394	144	73	107	831	1421	69·7

TABLE C.

(Corresponding to Table III. of the Local Government Board.)

NUMBER OF CASES OF DISEASE NOTIFIED IN EACH DISTRICT AND NUMBER REMOVED TO HOSPITAL.

1910.

Names of Localities.	Cases Notified in each Locality.									Number of Cases Removed to Hospital from each Locality.								Phthisis notified.
	Small-pox.	Cholera.	Diphtheria, including Membranous Croup.	Erysipelas.	Scarlet Fever.	Enteric Fever.	Continued Fever.	Puerperal Fever.	Totals.	Small-pox	Cholera.	Diphtheria, including Membranous Croup.	Erysipelas.	Scarlet Fever.	Enteric Fever.	Continued Fever.	Puerperal Fever.	Totals.	
URBAN.																			
Barking	...	...	41	29	116	7	...	2	195	...	...	24	...	99	6	...	...	129	41
Braintree	...	...	3	1	...	...	...	...	4	...	...	3	...	...	...	...	...	3	...
Brentwood	...	...	1	1	16	2	...	...	20	...	...	1	...	15	...	...	...	16	...
Brightlingsea ...	...	...	...	2	1	2	...	...	5	...	...	...	...	...	...	...	...	...	...
Buckhurst Hill ...	...	...	3	4	16	1	...	...	24	...	...	2	...	13	1	...	...	16	1
Burnham	...	...	6	1	11	..	...	...	18	...	...	...	...	2	...	...	...	2	...
Chelmsford	...	...	17	5	14	...	...	2	38	...	...	15	...	10	...	...	...	25	1
Chingford	...	...	5	3	27	...	...	...	35	...	...	1	1	11	...	...	...	13	...
Clacton	...	...	15	2	18	...	..	3	38	...	...	15	1	18	...	...	...	34	1
Colchester	4	...	32	30	79	2	...	4	151	4	...	28	...	67	2	...	...	101	58
East Ham	...	...	142	104	329	19	...	6	600	...	...	115	11	246	16	...	2	390	86
Epping	...	...	14	...	6	1	...	...	21	..	...	14	...	5	1	...	...	20	3
Frinton	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Grays	2	..	19	6	28	2	1	...	58	2	...	11	...	12	2	...	...	27	3
Halstead	...	...	...	3	5	...	...	...	8	...	...	...	...	3	...	...	...	3	...
Harwich	...	..	13	8	9	...	1	...	34	...	...	11	...	3	9	...	...	23	...
Ilford	...	...	68	42	198	16	...	1	325	...	...	55	2	149	8	...	...	214	40
Leigh-on-Sea ...	...	...	1	2	18	3	...	...	24	...	...	...	...	...	...	...	...	...	7
Leyton	...	...	167	89	555	9	...	7	827	...	...	103	23	364	8	...	4	502	84
Loughton	...	...	2	1	10	1	...	...	14	...	...	1	...	8	1	...	...	10	...
Maldon	...	...	33	5	1	1	...	...	40	...	...	29	...	1	...	...	...	30	...
Romford	...	...	3	15	33	2	..	..	53	...	...	2	...	27	...	...	...	29	...
Saffron Walden ...	...	..	5	6	27	...	...	...	38	...	...	5	...	6	...	...	...	11	...
Shoeburyness ...	...	...	10	6	5	2	...	...	23	...	...	4	...	4	...	...	...	8	...
Southend-on-Sea ...	...	...	47	13	143	2	...	2	207	...	...	41	...	131	1	...	...	173	7
Waltham Holy Cross ..	...	...	2	7	13	...	...	...	22	...	...	2	...	12	..	...	..	14	...
Walthamstow ...	...	...	138	99	232	26	...	3	498	...	...	111	8	189	19	...	1	328	...
Walton-on-the-Naze ...	...	...	3	...	1	2	...	...	6	...	...	...	..	...	...	...	...	...	...
Wanstead	...	...	17	4	43	1	...	..	65	..	..	7	...	29	...	...	...	36	..
Witham	...	...	4	1	2	6	...	...	13	...	...	...	...	...	...	...	...	...	..
Wivenhoe	...	...	30	1	2	...	...	...	33	...	...	...	...	...	...	...	...	...	3
Woodford	...	...	6	10	21	1	...	2	40	...	...	3	...	9	1	...	...	13	5
Total ...	6	...	847	500	1974	117	1	33	3478	6	...	603	46	1433	75	..	7	2170	
RURAL.																			
Belchamp	...	...	..	..	...	...	...	...	0	...	...	...	...	...	...	...	...	...	..
Billericay	..	...	7	5	41	2	...	1	56	...	...	...	...	...	...	...	...	...	..
Braintree	...	...	30	8	6	1	...	..	45	...	...	19	...	5	1	...	...	25	4
Bumpstead	...	...	1	5	1	1	...	..	8	...	...	...	...	...	...	...	...	...	...
Chelmsford	...	...	24	2	90	1	...	...	117	...	...	13	...	71	...	...	...	84	...
Dunmow	...	...	4	10	3	3	...	...	20	...	...	4	...	3	3	...	...	10	11
Epping	...	...	27	7	17	1	...	...	52	...	...	20	1	5	1	...	...	27	2
Halstead No. 1 ...	...	...	...	3	15	...	...	...	18	..	..	..	..	4	...	...	...	4	..
Halstead No. 2 ...	...	...		6	...	...	...	...	6	...	...	...	...	...	...	...	...	...	..
Lexden & Winstree...	...	...	16	14	19	...	...	...	49	...	...	...	...	...	...	...	...	...	..
Maldon	...	...	15	8	6	...	...	1	30	...	...	3	...	6	...	...	...	9	...
Ongar	...	...	9	10	20	...	...	1	40	...	...	...	...	...	...	...	...	...	6
Orsett	1		32	13	19	...	...	...	65	1	...	29	...	12	...	...	...	42	...
Rochford	...	...	16	24	34	3	...	1	78	...	...	10	...	25	3	...	...	38	...
Romford	...	...	27	23	38	3	...	...	91	...	...	11	...	31	3	...	...	45	...
Saffron Walden ...	...	...	1	5	2	...	...	...	8	...	...	1	...	1	...	...	...	2	...
Stansted	...	..	...	1	1	...	...	...	2	...	...	...	...	1	...	...	...	1	...
Tendring	...	...	6	11	52	6	...	1	76	...	...	...	...	...	1	...	...	1	...
Total.. ...	1	...	215	155	364	21	...	5	761	1	...	110	1	164	12	...	...	288	

TABLE D.

INFANTILE MORTALITY.

	URBAN DISTRICTS.																			RURAL DISTRICTS.																
	Under 1 week.	1—2 weeks.	2—3 weeks.	3—4 weeks.	Total under 1 month.	1—2 months.	2—3 months.	3—4 months.	4—5 months.	5—6 months.	6—7 months.	7—8 months.	8—9 months.	9—10 months.	10—11 months.	11—12 months.	Total deaths under 1 year.	Percentage of total deaths due to each cause.	Mortality rate per 1,000 Births.	Under 1 week.	1—2 weeks.	2—3 weeks.	3—4 weeks.	Total under 1 month.	1—2 months.	2—3 months.	3—4 months.	4—5 months.	5—6 months.	6—7 months.	7—8 months.	8—9 months.	9—10 months.	10—11 months.	11—12 months.	Total deaths under 1 year.	Percentage of total deaths due to each cause.	Mortality rate per 1,000 Births.
Small-pox	...	1	...	...	1	...	...	...	..	...	...	...	...	...	...	...	1	·07	·05	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	·14	·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	...	...	..	...	...	...	...	...	1	1	..	2	2	1	3	...	10	·7	·54	...	...	...	...	...	...	...	...	...	1	1	...	...	1	...	3	·75	·53
Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	2	·14	·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria & Croup ...	...	...	...	..	...	...	...	...	...	...	...	...	...	1	...	...	1	·07	·05	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	·25	·17
Whooping Cough ...	...	...	1	...	1	7	11	6	6	2	3	9	7	5	2	6	55	4·57	3·5	...	...	1	...	1	2	2	2	1	2	2	1	..	...	2	1	16	4·06	2·8
Diarrhœa, all forms ...	...	...	1	...	1	10	7	3	6	1	5	6	2	2	2	1	51	3·38	2·7	...	...	1	...	1	...	...	1	...	1	...	...	...	1	1	...	5	1·26	·88
Enteritis, Muco-enteritis Gastro-enteritis	...	...	2	1	3	6	5	6	1	10	6	3	3	3	3	3	52	3·65	2·8	..	...	...	...	...	.	3	1	...	...	...	...	...	...	1	1	6	1·5	1·06
Gastritis, Gastro-intestinal Catarrh	...	1	...	2	3	3	2	5	3	3	1	...	2	1	...	1	24	1·68	1·3	...	...	1	2	3	1	2	1	1	...	1	...	...	...	...	...	9	2·23	1·59
Premature Birth ...	238	39	20	17	314	14	3	1	1	...	...	...	...	...	...	...	333	23·4	18·07	70	7	9	4	90	5	...	...	...	...	...	...	...	...	...	...	95	24·1	16·8
Congenital Defects ...	53	14	9	5	81	8	5	4	1	1	1	1	...	2	...	1	105	7·38	5·69	21	3	2	2	28	3	2	1	1	.	1	...	1	...	...	...	37	9·39	6·54
Injury at Birth ...	10	1	...	...	11	...	...	...	...	...	...	...	...	...	...	...	11	·77	·59	6	...	...	...	6	...	...	...	...	...	...	...	...	...	...	...	6	1·5	1·06
Want of Breast-milk, Starvation	1	1	1	1	4	2	2	1	1	...	1	...	...	...	1	...	12	·84	·65	2	...	...	1	3	...	...	...	...	...	2	...	1	...	...	...	6	1·5	1·06
Atrophy, Debility, Marasmus	58	19	20	12	109	33	28	18	13	7	6	9	14	8	2	2	249	17·5	13·5	14	7	4	4	29	11	8	2	4	...	1	...	1	1	1	...	58	14·7	10·26
Tuberculous Meningitis...	...	...	...	...	...	1	2	3	5	1	2	2	...	...	4	3	23	1·61	1·24	...	...	...	...	...	...	...	...	...	2	2	...	...	..	1	...	5	1·26	·88
Tuberculous Peritonitis...	...	...	1	...	1	...	1	3	2	2	2	...	1	..	...	1	13	·91	·7	..	...	...	...	...	..	...	1	...	1	...	...	1	...	...	2	5	1·26	·88
Other Tuberculous Dis....	...	...	...	...	...	1	2	3	2	...	1	1	2	...	...	1	13	·91	·7	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	2	·5	·35
Erysipelas	...	...	1	...	1	1	...	...	...	...	...	...	1	1	...	...	4	·28	·21	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	·2	·17
Syphilis	1	2	1	2	6	2	...	...	...	...	2	...	...	...	...	1	11	·77	·59	...	1	...	...	1	3	1	...	...	...	...	...	...	...	...	5	1·26	·88
Rickets	...	...	...	...	...	...	...	2	2	1	1	1	1	...	2	...	10	·7	·54	...	...	...	...	...	...	...	...	...	...	1	...	...	2	1	4	1·01	·7
Meningitis (not Tub.) ...	...	...	...	...	...	...	2	...	2	2	5	3	1	2	1	1	19	1·33	1·03	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	·5	·35
Convulsions	14	9	5	3	31	4	7	10	2	5	2	5	3	2	4	1	76	5·34	4·1	7	1	2	1	11	6	3	3	2	1	2	2	1	3	1	1	36	9·1	6·37
Bronchitis	..	1	2	7	10	17	11	13	12	11	8	8	11	11	10	7	129	9·07	6·9	1	...	3	...	4	4	2	7	4	3	1	2	1	3	3	1		8·8	6·19
Laryngitis	...	..	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	·07	·05	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	·5	·35
Pneumonia	1	1	1	1	4	7	12	8	11	8	9	8	9	9	10	5	100	7·03	5·42	...	...	1	1	2	1	2	1	4	...	1	2	1	3	3	...	20	5·07	3·54
Suffocation, overlaying...	8	1	1	1	11	5	2	2	1	..	1	...	...	1	...	1	24	1·68	1·3	1	...	1	...	2	...	...	1	1	...	...	...	...	...	...	..	4	1·01	·7
Other causes	21	7	2	4	34	9	4	3	4	6	...	2	5	2	2	9	80	5·63	4·3	8	3	1	3	15	2	3	3	...	1	...	...	2	...	3	2	31	7·8	5·4
Total	405	97	68	56	626	130	106	96	76	61	56	60	65	51	47	47	1421			130	22	26	19	197	38	28	26	18	12	15	9	9	12	19	11	394		